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AUGUST 16, 1941

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EVENTS



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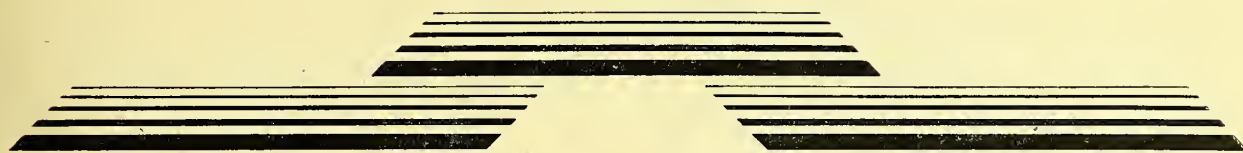
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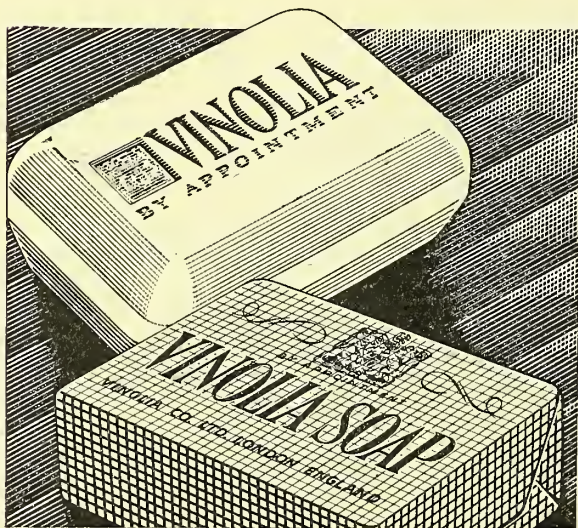
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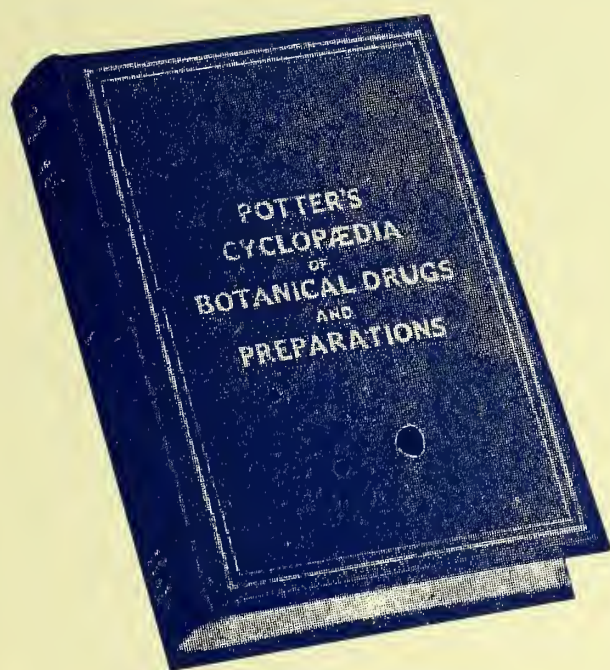
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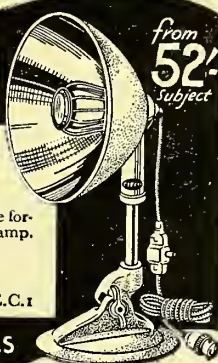
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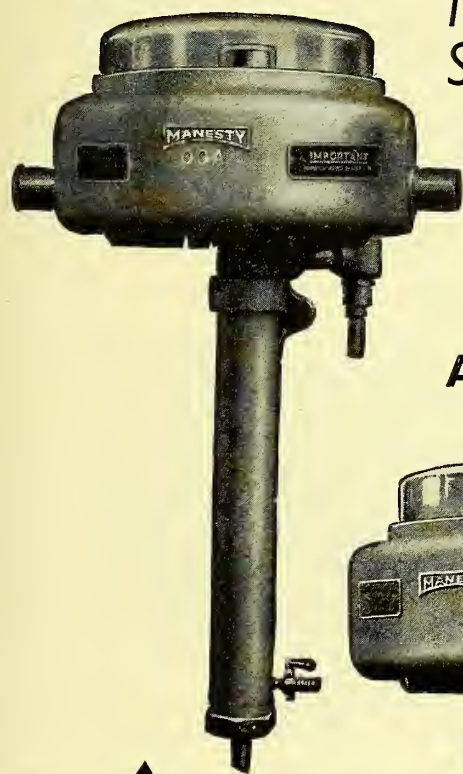
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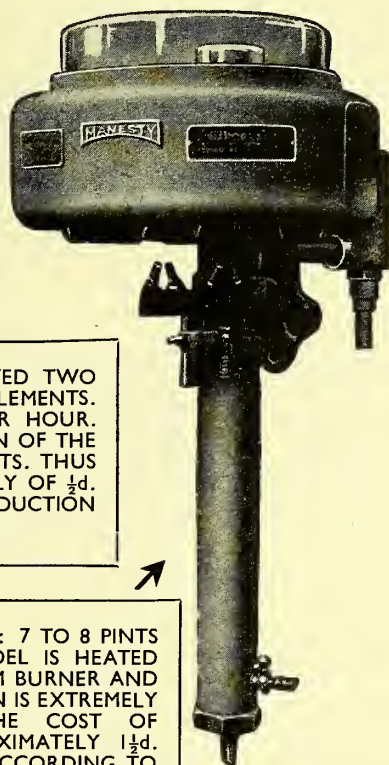
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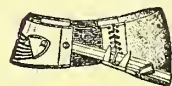
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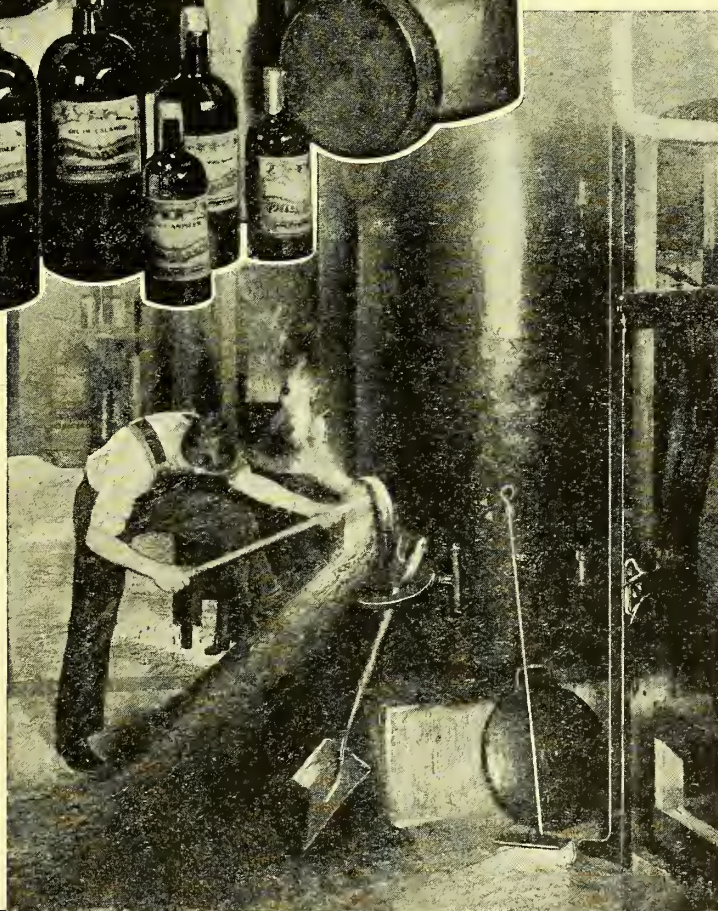
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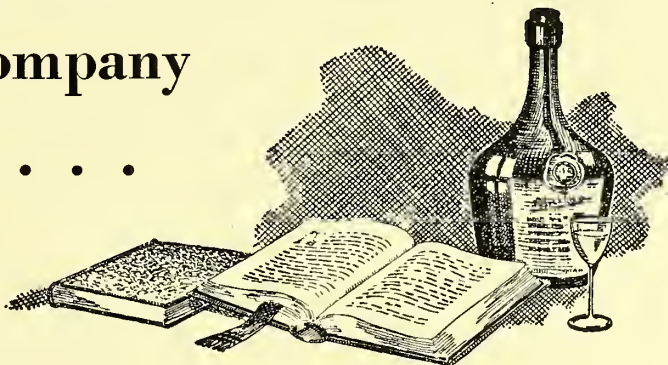
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NEWS OF THE WEEK

Pharmacy and Medicines Bill.—The Pharmacy and Medicines Bill, as announced in last week's Coloured Supplement (p. xi), was considered by the House of Lords in Committee and returned to the House of Commons with amendments. These were accepted and the Bill received the Royal Assent on August 7.

Key Industry Duty.—The Treasury has made an Order under Section 10 (5) of the Finance Act, 1926, as amended by Section 2 (1) of the Import Duties (Emergency Provisions) Act, 1939, exempting tertiary butyl alcohol from Key Industry duty from August 11 until December 31. Copies of the Order, which is entitled the Safeguarding of Industries (Exemption) No. 4 Order, 1941, may be obtained from H.M. Stationery Office.

Control of Molasses and Alcohol.—The Minister of Supply has issued the Control of Molasses and Industrial Alcohol (No. 13) Order (price 1d.), varying the No. 11 Order and bringing under licence as from August 7 all molasses, however small the quantity. No licence will, however, be necessary for molasses used as food for stock where the consumer acquires less than six tons in all in any period of six months. Any inquiries and applications for licences should be addressed to the Molasses and Industrial Alcohol Control, Great Burgh, Epsom, Surrey.

New Import Control.—A number of important commodities not at present coming under Ministry of Supply control are reaching this country, mainly from the United States under the Lease and Lend Act. To ensure that they are distributed in accordance with essential needs a new department of the Ministry, to be called the Sundry Materials Branch, has been established at Iron Trades House, 1 Chester Street, Grosvenor Place, London, S.W.1. Mr. L. G. Fisher has been appointed Director for Sundry Materials and he will work largely through existing organisations, which, in distributing the goods to consumers, will act as agents of the Ministry and not as principals buying for re-sale.

Small Traders' Difficulties.—A deputation of members of the 1922 (Conservative members) Committee met the president of the Board of Trade on August 7 to express their concern with the difficulties of small traders and small manufacturers, particularly emphasising such difficulties as might be due to unequal distribution of the supplies available. Sir Andrew Duncan said that he was fully alive to the small traders' difficulties. He gave an assurance that multiple shops and large stores were receiving no preferential treatment in any arrangements over which the Board of Trade can exercise control. He referred to the Craig-Henderson Commission set up to examine the position of the retail trade under war-time conditions. He promised to keep the whole position of small traders under his personal observation.

Pharmaceutical Chemist Qualifying Examination.—At the examination held in London recently, twenty-three candidates entered, fifteen passed, five failed, two were referred, and one was absent. The following candidates were successful:—Askam, V.; Baker, J. A.; Evans, D.; Hindle, J. E.; Jenkins, E. W.; Karmali, S.; Lloyd, T. E. S.; Mead, J. H.; Organ, Joan G.; Plear, Marjorie E.; Sherriff, C. H.; Short, Phyllis M.; Stenlake J. B.; Somers, G. F.; Williams, F. H.—At the Pharmaceutical Chemist Qualifying Examination held in Edinburgh, eighteen candidates passed, seven were referred, and ten failed. The following were successful:—Dean, A. C. R.; Fairclough, J. V.; Fowler, F.; Glover, J.; Hannigan, D. D.; Hill, R.; Kaye, G. A.; McQueen, Christina L. H.; Mansfield, J. L.; Marshall, J. B.; Marshall, W. W.; Ogg, W. F.; Praeger, A.; Secker, F.; Stewart, A. E. T.; Watt, C. R.; Wood, L. A.; Young, R. R. S.

Golf.—Two golf matches have been played recently by the Manchester and District Pharmaceutical Golfing Society. On July 16, at Denton, V. Cromack won the Ucal Trophy, and at Reddish, on August 6, C. Stevens won the Griffith Hughes Prize.

Hull Chemists' Annual Meeting.—Mr. W. E. Naylor presided over the recent annual meeting of Hull Chemists' Association and the local branch of the Pharmaceutical Society, when prizes were presented to Miss Barnet and Miss Barker, two students who had done good work in the pharmacy course at Hull Technical College during the year. The various reports were read and adopted, the secretary, Mr. B. Foster, stating that the programme arranged for the year had been followed as closely as possible under the difficult conditions. The following officers were elected: *President*, Mr. R. L. Stephens; *Vice-presidents*, Mr. H. Ringrose, Mr. K. Clappison; *Secretary*, Mr. B. Foster; *Minute Secretary*, Miss E. B. Palmer; *Social Secretary and Treasurer*, Mr. Holliday; *Committee*, Mr. Booth, Mrs. E. Brocklehurst, Dr. Drummond, Mr. N. Harrison, Mr. Trout.

In the Courts.—At Guildhall, London, on August 6, Delmos Products, Ltd., Finchley Road, N.W., were fined £75 for selling thermos flasks at more than the controlled price.—At Ulverston, on August 7, Marie Ackers, Broughton-in-Furness, was summoned for selling mercuric iodide in a shaving cream in a container not properly labelled. Both charges were dismissed on the payment of costs.—At Derby, on August 6, Percy W. Bignall, trading as Bignall's High Class Drug Stores, was fined £3 for selling poison in a container not properly labelled and for selling it when not an authorised seller.—At County of London Sessions, recently, Davis Marsh, 178 Lambeth Walk, was summoned on charges of receiving 185 tubes of tooth-paste and other articles and with receiving three bottles of medicines and other articles which had been stolen from two bombed shops in the vicinity. A sentence of twelve months' hard labour was imposed.

Bombed Retailers' Stocks.—A general licence has now been issued by the Board of Trade, dealing with the replacement of retailers' stocks which have suffered war damage. The new licence supersedes those previously issued under the Limitation of Supplies (Miscellaneous) (No. 5) Order, 1940, and the Limitation of Supplies (Woven Textiles) (No. 7) Order, 1941, which authorised persons registered under those Orders to supply controlled goods free of restriction to retailers who sent in declarations setting out the amount of war damage which their stocks had suffered. Under the new licence a retailer whose stocks have been bombed must send to the Board of Trade a declaration in the prescribed form giving particulars of the damage and of War Risks Commodity Insurance policy and claim. This declaration must be attested by a responsible local official of a chamber of commerce, chamber of trade or trade association or by an independent accountant—and he can then send to his suppliers applications (also in a prescribed form) for replacement of the war-damaged goods. Each application must be sent in duplicate and the total value of the goods to be replaced must not exceed the total amount of loss as shown in the duplicate sent to the Board of Trade. The suppliers can then supply the retailer with the appropriate quantities of goods outside their own quotas. The new licence also allows the retailer to nominate some other person to receive the replacement goods on his behalf. It enables arrangements to be made, under retailer co-operation schemes, by which, if a retailer's premises are destroyed, the replacement goods can be sent to another retailer in the same town so that the local community shall not go short of supplies.

PHOTOGRAPHIC DEALERS' ASSOCIATION

THE annual meeting of the Photographic Dealers' Association was held in London recently. Mr. J. Lomax (treasurer) presented the accounts, which showed a surplus of £302. This exactly cancelled the accumulated deficiency, so that 1941 has begun with a clean balance sheet. It was shown that the subscription income was down by £213. Economies had been effected in administration, and a further saving of £267 was accounted for by the lecture scheme having been dropped owing to black-out and air-raid conditions. On publications and propaganda there was a saving of £37. The publicity to offset the misrepresentations caused by the Control of Photography Order cost £146. Mr. Lomax suggested the building up of a reserve fund. The accounts were adopted on the proposal of Mr. W. H. Humphrys (London, S.E.15) and seconded by Mr. F. Beken (Coves). Several members concurred in the advisability of building up a reserve fund.

Election of Council and Officers.—The secretary reported that one-half of the elected members of the Council retired each year, and that the following had been duly elected for 1941-3: R. G. Lewis, London; G. A. Frith, Richmond; H. R. Storm, Worthing; C. Howe, Bath; H. L. Warner, Wolverhampton; J. Riddell, Newcastle; J. Lomax, Manchester; R. C. McKechnie, Edinburgh; L. G. Smith, Dublin. The officers were re-elected as follows: *President*, J. Paterson; *Vice-President*, H. L. Warner; *Treasurer*, J. Lomax; *Auditors*, Messrs. Moustardiers; *Scrutineers*, J. Hearle, J. Milner.

Discussion.—The discussion following the above business was entirely devoted to the question of quota supplies, many expressing the gravest dissatisfaction with the paucity of sensitised material they had received this year, and especially during April-June. The Council was instructed to convey these views to the urgent attention of the suppliers, and to request a statement as to whether the 25 per cent. quota would in fact be distributed to dealers who have applied during the current period.

War Emergency Committee.—After the annual meeting a meeting of the Council was held at which the following business was transacted. The names of those appointed to the War Emergency Committee are: J. Paterson, London; H. L. Warner, Wolverhampton; J. Lomax, Manchester; A. F. Attwell, Bournemouth; A. J. Caithness, Kirkcaldy; H. Mottershaw, Sheffield; G. A. Frith, Richmond; Wallace Heaton, London; A. Hoare, Derby; A. Oglesby, London; F. J. Young, Leicester.

Quota Supplies.—The views expressed at the annual meeting, and in a heavy correspondence, were considered together with reports of discussions with manufacturers. The latter stated that obviously they want to supply and satisfy old customers within the limits imposed; that there is not preferential treatment of customers, as their trade is mostly from small dealers. In order to secure equality of treatment the order form system was introduced, which entails the added labour of a scrutiny of each dealer's comparative figures. This system could not immediately operate last

December, owing to the sudden decision of the authorities, also the shortage of trained staff, so in order to keep supplies moving figures had to be approximately calculated. The position was further complicated by priority orders and production difficulties which had led to the quota being exhausted early. This explains the short deliveries during the later months. No new accounts have been opened since rationing commenced. In future each dealer would have indicated to him the amount which he must not exceed during the period. The Council agreed to ask for a clear statement as to deliveries during the current period. It was agreed to petition the Board of Trade regarding the Limitation Order.

D. and P. Prices.—In view of widespread expressions of opinion received from members, and the grave difficulties confronting those handling D. and P., it was agreed to support trade negotiations for an increase in the developing charge to 9d.

Eire Branch Meeting.—The annual meeting of the Eire Branch of the Association was held at 12 College Green, Dublin, on July 29, Mr. G. A. McLean Lee (chairman) presiding. In the course of his address the chairman said the branch had a more or less slack time during the past year. No propaganda work was carried on by the branch as they felt conditions were not favourable for such activity. Amongst the trade there was a certain amount of pessimism during the past few months which was really not justified. In the matter of supplies there was a shortage of the better-class cameras, of certain classes of films and papers. Before the war their membership was around 200, but today it had dropped to around 130, or possibly something above that figure as some returns due to postal delays had not yet reached them. He had received the audited accounts from Mr. Brady (treasurer), and they showed that the branch started the year with a balance of 12s. 5d. and finished up with a credit balance of £4 45s. 6d. From head office they had received two refunds totalling £25 which were utilised to cover office expenses, stationery, circulars, postages, etc. The balance in hand was very satisfactory and he had much pleasure in proposing the adoption of the treasurer's report. Mr. D. Brown seconded the motion, which was carried. On the motion of Mr. T. C. Scott, seconded by Mr. Brown, the outgoing members of the committee were re-elected. The co-option of a member to replace the late Mr. Eric Ryan was left in the hands of the committee. Mr. Lyall Smith reported on the work being done by the War Emergency Committee of the P.D.A. in London. A general discussion followed on the question of asking manufacturers to rigidly reserve supplies to established dealers, and to refrain from opening new accounts during the present crisis. The chairman mentioned that dealers in Eire were getting only about 25 per cent. of their normal supplies, while certain classes of chrome and pan films were running short. In these circumstances he did not see how manufacturers or wholesalers could open new accounts.

TOPICAL REFLECTIONS

Foreign Assistants.—One of the many important subjects that have come before the Council of the Pharmaceutical Society of late, that of admitting citizens of other countries as assistants in British pharmacies, has been discussed openly (p. 68), a procedure in welcome contrast to the secrecy at Bloomsbury Square that has too often shrouded matters of general concern to pharmacy. We need clear thinking on this subject. None of us would countenance anything that might "queer the pitch" of British pharmacists, their assistants and their apprentices; and so axiomatic is this attitude that the Educational Committee of the Society's Council seems to have been rather afraid of its own draft recommendations. The practical question, then, is whether, in availing ourselves of the proposed help (with the permission of the Minister of Labour), we shall be doing anything detrimental to the interests of our own pharmaceutical community. We do not yet know what the coming shortage of staff in pharmacies will amount to: large or small, however, it will be serious. Ought we to fill some of the gaps with foreign applicants who have been through a selective course of training? In my view the advantages exceed the possible drawbacks. To do something to lessen the dull sense of frustration that weighs so heavily on refugees will increase their gratitude for the measures of relief that have already been undertaken on their behalf, and will help to strengthen the prestige that we expect Britain to enjoy after the war. As far as my contact with such people is any guide, they are as intent on a British victory as we are, and will serve loyally in any capacity for which they are fitted.

Examination Passes.—The tabulated results of the July examinations of the Pharmaceutical Society (*C. & D. Coloured Supplement*, August 2, p. xi) are significant. In the first place, 138 candidates out of 265 who entered in London have qualified for registration. That event, in the middle of this colossal war, was hardly expected by most of those who watch the fluctuations of examination figures. In January sixty-three candidates out of 145 qualified in London, and in April fifty-three out of 102. The corresponding Edinburgh figures are, as usual, smaller. Last week's *C. & D. Coloured Supplement* (p. xi) shows, however, a similar rise in Edinburgh entries (212) and passes (129) in July to that of

London. What is to be the immediate future of these young pharmacists? The proportion of women to men is not higher than in peace-time, as far as I can judge; we have, therefore, an addition to the Register of about 125 men of military age. It is a satisfaction to all of us that they have been able to continue their studies till they have qualified, and we hope that their time will prove to have been well spent. Turning to the table of failures, it will be seen that in the Intermediate examination biology, comprising botany and zoology, heads the list numerically with a total of seventy-eight failures and seventy-one students referred among 272 candidates, thus continuing the traditional difficulty, real or supposed, of the former botany examination. Physics comes next with sixty-five failures and nine persons referred among 246 candidates. In the Chemist and Druggist Qualifying examination the highest number of failed and referred students, fifty-five and twenty-seven respectively, was in pharmaceuticals. Examiners and teachers may derive valuable hints from a more detailed and comparative study of the figures.

Willingness to Discontinue.—The survey in British Columbia (p. 66), resulting in the finding that the majority of proprietors of pharmacies would be willing to discontinue the sale of certain side-lines if other retailers would stop selling pharmaceutical products, indicates an alertness in matters of policy that we shall do well to emulate. I shall perhaps be reminded that in one form or another this question has often been raised in Great Britain. But the significance of the Canadian survey lies not so much in the statistical information obtained—which will vary from country to country and from district to district—as in the fundamental fact that a bargain must be made before any decisive steps can be taken. The contention that only people who have been trained and are certified as competent to sell and dispense medicaments should do so would, if public opinion was more intelligent than it is, carry conviction. Other traders, however, when this point is urged, begin to decry the sale of various side-lines by chemists. Who is to draw up a list of things that should be surrendered in return for the exclusive right to handle medicinal substances? Further, any list of the kind would have to be binding, or it would be useless. I am not sure that the retail trades of the country are sufficiently organised yet. **Xrayser**

COMPANY NEWS

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M. & S. DRUG STORES, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of pharmaceutical and general chemists, herbalists, etc. M. Sheldon, 225 Leigham Court Road, Streatham, London, S.W.16, and S. Shedletsky, "Sunnyside," Dumbarton Road, Brixton Hill, London, S.W.22, directors.

NEW IODINE PRODUCTS, LTD. (P.C.).—Capital £1,000. Objects: To acquire from Charles R. Ritter the sole right to manufacture, market and sell a provisionally protected process relating to the use and application of iodine, and to carry on the business of manufacturers of and dealers in chemicals, etc. The first directors are to be appointed. Solicitors: E. Stuart Hunt, 1 Leadenhall Street, London, E.C.3.

W. MELLOR & Co. (MOSSLEY), LTD. (P.C.).—Capital £1,000. Objects: To acquire the business carried on at Una Mill, Mossley, Lancashire, as "W. Mellor & Co.," and to carry on the business of manufacturers of and dealers in cotton wool, surgical dressings, belts, trusses, etc. Walter Mellor, 46 Oldham Road, Grasscroft, Yorkshire, and Walter Eastwood, 12 Lees Road, Mossley, Lancashire, directors. R.O.: Una Mill, Mossley.

BRITISH SCHERING, LTD. (P.C.).—Capital £100,000. Objects: To carry on the business of chemists, druggists, manufacturers of and dealers in medicinal, bacteriological, industrial, horticultural, agricultural, veterinary and other preparations and proprietary articles, manufacturers and dealers in anatomical and surgical appliances and hospital requisites. Directors are to be appointed by the subscribers. Solicitors: Roney & Co., 42-45 New Broad Street, London, E.C.2.

TIMOTHY WHITES DRUG STORES, LTD. (P.C.).—Capital £100. Objects: To carry on the business of wholesale, retail and manufacturing chemists, druggists, librarians, hardware merchants, proprietors of drug and household stores, etc. Arthur J. Espley, Ravenswood, Tilford, Surrey. Arthur Wilson, 452 Upper Richmond Road, Richmond, Surrey, and George I. Rushton, Meadowcroft, St. James Drive, Harrogate, directors. R.O.: Allen House, 70 Vauxhall Bridge Road, London, S.W.1.

SANGERS, LTD.—The directors recommend a final dividend of 15 per cent. (less tax), making 22½ per cent. for the period ending July 30, 1941. Net trading profit amounted to £209,755, compared with £249,796 in the previous year. Provision for taxation amounted to £98,011 and £75,000 is transferred to contingency reserve. Balance of £115,803 is carried forward, subject to three months' accrued dividend on preference shares.

A. BOAKE, ROBERTS & Co., LTD.—Trading profit for the year ended March 31 amounted to £109,383, compared with £121,882 in the previous year. Tax absorbed £55,967 (£31,767); directors' remuneration, £6,948 (£5,754); employees' participation and pensions, £12,099 (£13,552). A final dividend of 1½ per cent. is recommended, making a total of 9 per cent., tax free (11 per cent., tax free). Carried forward, £121,276 (£109,906 brought in).

TRADE NOTES

BONUS OFFER.—Iglodine Co., Ltd., Newcastle-on-Tyne, are making a special announcement on another page of this issue.

YESTAMIN, which is a pure dried brewer's yeast with a high vitamin B content, is a product of the English Grains Co., Ltd., Burton-on-Trent. Yestamin is available in the form of tablets and powder.

ENGLISH LAVENDER.—Perks & Llewellyn, chemists and lavender distillers, Hitchin, have sent us a bunch of their English lavender. The heads are large and seem full of oil, which promises to prove of the usual high quality.

MEDICINAL HERBS.—John Kellys (London), Ltd., 27 Old Broad Street, London, E.C.2, invite wholesalers to write for quotations and samples of such products as aconite root, belladonna, colchicum, dandelion, digitalis, ergot, henbane, hydrastis, ipecacuanha, squills and valerian.

P.A.T.A. SUPPLEMENTARY LIST.—The Proprietary Articles Trade Association, 4 The Embankment, Bedford, have issued a supplement to the list of protected articles contained in the P.A.T.A. Year Book, 1941. This embodies additions, alterations and corrections to July 19.

APPRECIATION OF CO-OPERATION.—Arthur H. Cox & Co., Ltd., manufacturing chemists, Brighton, assure chemists that they fully appreciate the difficulties under which they are trading and that the company will make every effort to speed up deliveries and distribute stocks as equally as possible where rationing is necessary.

VINOLIA SOAP.—It is announced by Vinolia Co., Ltd., Bebbington, Cheshire, that the familiar carton for Vinolia soap is to be discontinued and the standard tablet is to be supplied in a new shape. The company also point out that it may become necessary temporarily to issue the tablets unwrapped through lack of wrappers, but the bath tablet of Vinolia soap will continue to be supplied in its standard carton until further notice.

The following is a list of educational institutions advertising in this issue: National Association of Opticians; C. A. Scurr; Bradford Technical College; Glasgow Royal Technical College; St. Andrew's University; Brighton Technical College; Sunderland Technical College; Heriot Watt College; Birmingham Central Technical College; Merchant Venturers' Technical College; Leeds College of Technology; Chelsea School of Pharmacy; Royal Dental Hospital School; Leicester College of Technology; Southampton University College; Salford Royal Technical College; Wolverhampton and Staffordshire Technical College; Plymouth Technical College; Glasgow School of Optics; Huddersfield Technical College; Robert Gordon's Technical College; Stockport College; Harris Institute; Liverpool School of Pharmacy; and Manchester University.

PERSONALITIES

MR. H. S. HIBBINS, Ph.C., Beeston, Notts, has been elected president of the local Rotary Club.

MR. G. T. SHIPSTON, B.Sc., F.I.C., has been appointed Director of Fruit Juices and Pectin in the Ministry of Food.

DR. THOMAS DEWAR will shortly be relinquishing his position as secretary to the County of Middlesex Pharmaceutical Committee in order to take up an appointment with The Wellcome Foundation, Ltd.

MR. ARTHUR MORTIMER, O.B.E., secretary of the Wholesale Drug Trade Association and chairman of the Pharmaceutical Export Group, has been appointed Assistant Director of Medical Supplies at the Ministry of Supply.

The first award of the Paracelsus Medal of the Swiss Chemical Society was made in 1939 to Sir Robert Robinson, Waynflete Professor of Chemistry, Oxford University. At that time Sir Robert was in Switzerland, but owing to the war had to return to London and the presentation could not be made. A lunch given in honour of Sir Robert was held in London on August 6, when he received the Medal from the hands of the Swiss Minister.

MR. DAVID TRAIN, the Fairchild Scholar 1940, was successful at the recent Qualifying examination, and at the College of the Pharmaceutical Society was awarded the bronze medal in pharmacognosy, the bronze medal in pharmacognosy and certificate of honour practical, and the James Hewlett Memorial Exhibition. As announced at the recent Council meeting (*C. & D.*, August 9, p. 68) he has also been awarded the 1940-41 certificate of honour in forensic pharmacy.

Of the members of the staff of Roche Products, Ltd., Welwyn Garden City, Herts, serving with the Armed Forces, the following are of special interest to chemists: Mr. B. A. Probert (sales manager, pharmaceutical department) is taking up an appointment as pilot officer in the R.A.F.V.R., Administrative and Special Duties Branch. Mr. F. R. Lush (London and Home Counties representative) is serving with the R.A.F. on elementary flying training; Mr. W. B. Sutton (representative in Yorkshire, Derbyshire and Durham) is serving in the Royal Artillery; Mr. J. E. Blisken (formerly sales department assistant) is with the Pioneer Corps as second lieutenant; Mr. C. J. Beard, M.P.S. (medical representative London and Home Counties), is in the R.A.M.C. as sergeant-dispenser.

BIRTHS

PRING.—At the Larches Nursing Home, East Grinstead, on July 26, Norah Barbara, the wife of Dudley Pring, M.P.S., 560 Westbourne Avenue, Eltham, London, S.E.9, of a son.

DEATHS

ANDERSON.—Recently, Mr. James Anderson, M.P.S., 464 Rochdale Road, Royton, Lancs, aged sixty-eight.

BRICE.—Recently, Mr. Frederick Gratton Brice, chemist and druggist, 14 Sackville Gardens, Kingsway, Hove, aged seventy-four.

BROWNE.—Recently, Mr. Wilfred Browne, M.P.S., Australia Street, New Seaham, co. Durham, aged thirty.

COLEY.—Recently, Mr. James William Ernest Coley, Ph.C., 25 Hampton Road, Twickenham, aged sixty-six.

GREGORY.—Recently, Mr. John Lewis Gregory, M.P.S., Fore Street, Wellington, Somerset. Mr. Gregory passed the Minor examination in 1906.

MCDONALD.—At 997 Cathcart Road, Glasgow, S.2, Mr. George McDonald, M.P.S. Mr. McDonald passed the Minor examination in 1889.

MCGETTIGAN.—On July 29, Miss Elizabeth McGettigan, M.P.S., 145 Albert Road, Glasgow. Miss McGettigan qualified in 1922.

RECENT WILLS

MR. RICHARD TODD SIMPSON, 24 Regent Street, Lancaster, chemist and druggist, who died on May 25, left £94.

MR. EDWARD VAUGHAN RIPPIN, 208 Osborne Road, Forest Gate, London, E., druggists' sundriesman, who died on February 5, left £13,455.

MR. WILLIAM SPYVEE, 34 Victoria Avenue, Sleaford, retired chemist and druggist, who died on May 17, left £12,397, with net personality £8,844.

MR. GEORGE WILLIAM HOBSON, M.P.S., Welbeck Villas, Dall Road, Buxton, Derbyshire, who died on January 30, left estate of the gross value of £1,341, with net personality £804.

MR. JOHN ADAMS, 253 Upper Newtownards Road, Belfast, pharmaceutical chemist, who died on February 1, left personal estate in Great Britain and Northern Ireland valued at £8,168.

MR. ERNEST CHARLES MORGAN, Greenrigg, Birds Hill Road, Oxshott, Surrey, a director and head of the advertising department of Yardley & Co., Ltd., manufacturing perfumers, London, who died on May 4, left £67,406, with net personality £58,691.

MR. LEOPOLD HENRY GRUBB, 60 Newtown Road, Waterford, Eire, pharmaceutical chemist, principal of George White & Sons, Waterford, a former president and secretary of Waterford Chamber of Commerce, who died on April 18, left personal estate in England and Eire valued at £8,396.

BIOLOGICAL SPECIMENS FOR STUDENTS

EVERY pharmaceutical student has to become acquainted at some stage in his academic training with biological specimens and anatomical models. Few, however, have the opportunity of seeing how these specimens are prepared or appreciate the skill which has been put into them before they finally reach the college museum or laboratory. In this article an account is given of a visit to the laboratories of T. Gerrard & Co., Ltd., Pentonville Road, London, N.1, a firm of biologists who have specialised in the preparation of such specimens since 1850, and who are in the somewhat unique position of being able to supply from stock almost any kind of specimen required by students from an amoeba to the skeleton of an elephant. The preparation of models and specimens for museums and demonstration purposes is a highly specialised business, and the work involved calls for considerable skill and experience on the part of the craftsmen employed. The demands for the specimens are extremely varied and supplies of living, preserved, mounted or dissected botanical or zoological specimens are sent by this firm to students, schools, universities, natural history museums and exhibitions in all parts of the world.

Sources of Materials.—The source of supply of the specimens varies according to the particular type of plant or animal. Arrangements are made by the firm with local collectors for supplies of the more commonly used specimens, but where any special care is required one of the firm's experts is sent to supervise the collection. In the case of marine specimens such as dog fish, for which there is a large demand, these are brought in by trawlers which fish in the English Channel and off the north-east coast. Special instructions are given that these fish be brought in with the viscera intact, and they are sent to the laboratories directly from the coast for preservation. As regards materials from foreign countries, these were formerly obtained on the exchange system, i.e. they were sent to this country by explorers, collectors, etc., who received some specimen from the firm's stock in exchange. Latterly, however, supplies of this sort are almost entirely bought from collectors overseas with whom the firm are in contact. Human skeletons are obtained by this firm entirely from foreign countries, the various components being sent separately; sorting and assembling into the complete skeleton being carried out by the firm in their osteology department. The preserving materials consist mainly of alcohol or formalin solutions, the strength and mixtures varying according to the type of specimen to be preserved. Glycerin solutions are also occasionally used.

Preparation of Specimens.—The following general method of preparing the specimens will serve to illustrate the various techniques involved. On arrival at the laboratories, specimens which cannot be treated immediately are kept in the appropriate preserving solution. Where it is required to prepare a skeleton, the animal is skinned and the flesh removed either by straightforward dissection or by previously macerating the carcass in cold or hot water to soften the flesh. When the bulk of the flesh has been removed the skeleton is brushed with lime to remove final traces of flesh. The skeleton is then washed thoroughly with water and afterwards dried. Where it is required to preserve the skin of a fish or animal in addition to preparing a skeleton, the former is removed, cleansed and preserved, and then stretched over a plaster cast moulded to the exact shape of the carcass so that a replica of the original animal is obtained. For another type of specimen, known as a half-model, the skin is removed in the manner just described, preserved and toughened, after moulding into the shape of the animal, and half of it is fixed over the skeleton, so that the relative position of the skeleton to the external characters is illustrated, and on one side the skeleton is visible, while on the other the natural skin is shown.

In the preparation of dissected specimens, more care is required in the removal of flesh, as certain of the organs or tissues are required in the finished dissection. Here, in some cases, the fresh animal or plant can be dissected satisfactorily, but in others setting in formalin is necessary to toughen the more delicate tissues so that dissection may be completed without injury and a better display of organs afforded. Specimens which are prepared to illustrate the circulatory systems are treated by injecting an opaque gelatin mass containing suspended pigments into the veins and arteries, so that in the final dissection their courses can easily be traced, and the different colours used (red and blue) differentiate between arteries and veins. Another particularly interesting form of specimen is that known as a transparency, in which the specimen is treated in a clarifying process, so that the skeleton (which can be stained), viscera and parts of the nervous system can clearly be seen *in situ*. Transparencies are available for small specimens such as the frog, newt, rabbit embryo. In mounting the specimens described, a gelatin cement is used to fix the specimen to a transparent or opaque

glass screen, which in turn is secured to the glass demonstration jar containing the preserving solution.

Biological Models.—Another important section of this industry is the preparation of models designed to give the student a better idea of the relationship of cells and organs than can be obtained from illustrations. In the first place, a model is worked in either wax or plaster, and coloured by specially trained staff, who copy the necessary details from the actual organ, plant or animal. These models are then submitted to a recognised authority for approval. Moulds are then made from the approved models and copies are made for stock purposes from these models.

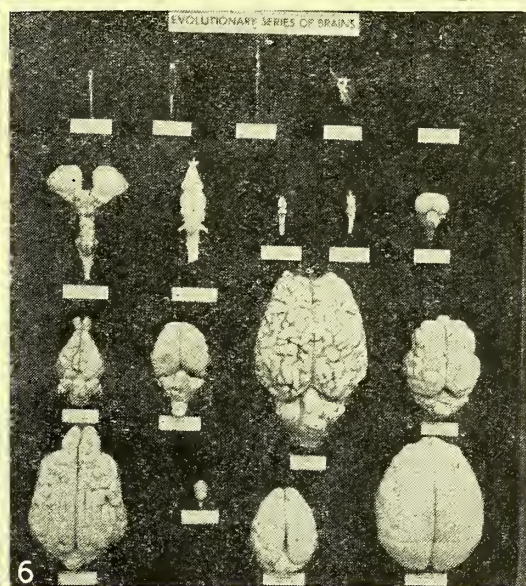
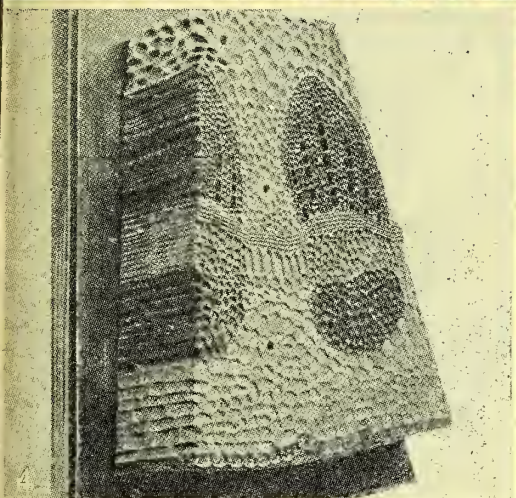
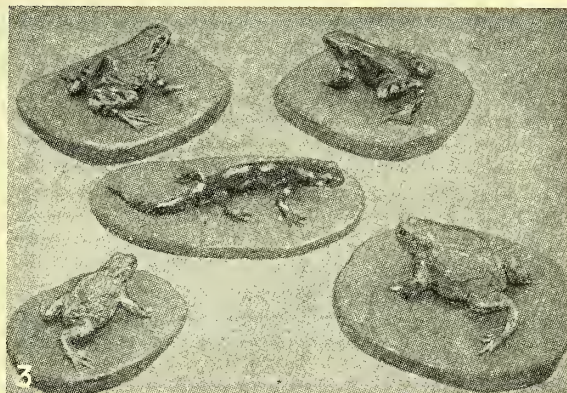
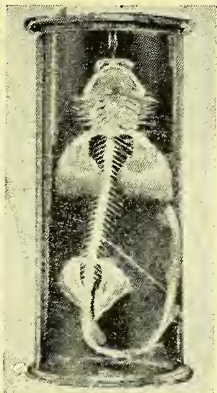
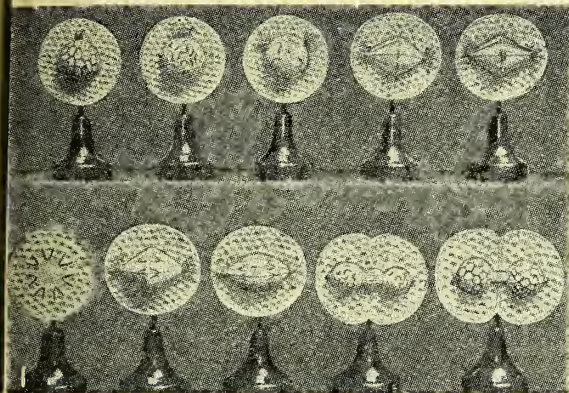
An essential part of the firm's activities is the chemical laboratory, where microscopical stains, mounting media, chemical reagents culture and injection media are prepared, both for use in the firm's various departments and for supply to schools and colleges. All forms of microscopical stains, both dry or in solution, can be supplied to standard or private formulas. It is very evident from the demand for microscopical stains made up in cellosolve (ethylene glycol monoethyl ether) that this new dehydrating agent is rapidly gaining popularity. Tests undertaken in the firm's laboratories have shown that this new dehydrating agent can be used satisfactorily in all cases where absolute alcohol is used for dehydration, and that it eliminates the various gradations of alcohol into 50 per cent., 70 per cent., etc., i.e., the section can be transferred directly from water to the reagent or *vice versa* without fear of shrinkage or alteration in structure. The substance is miscible with most other microscopical reagents and most of the water and alcohol-soluble microscopical stains are soluble in it. It can also be used as a base for a combined dehydrating agent and multiple stain; i.e., for a "one-process" staining method.

Other departments of this firm deal with preparation of microscopical slides of botanical and zoological sections and bacterial organisms; the manufacture of small laboratory apparatus; and the packing of specimens of all types for overseas markets.

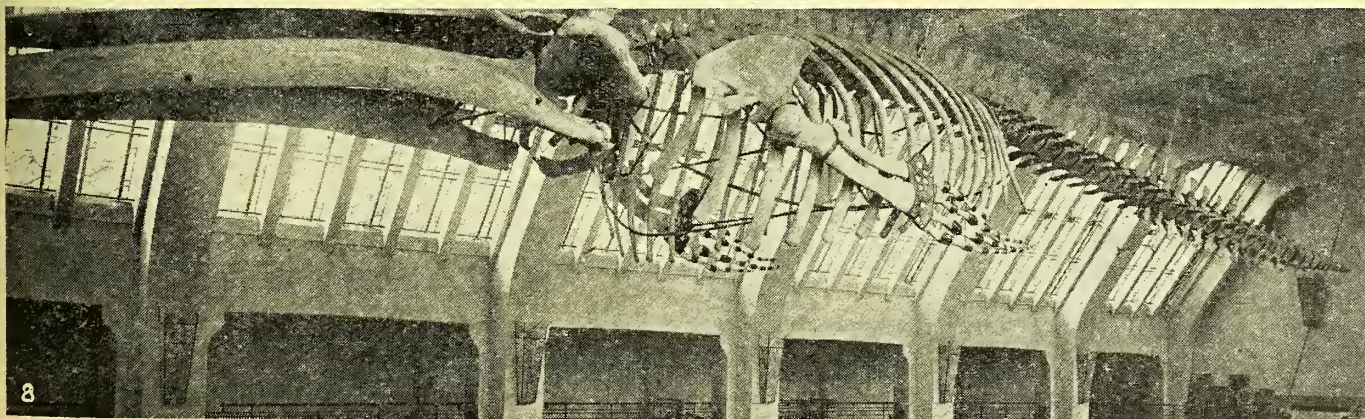
COOKING GREEN VEGETABLES

THE Medical Research Council has recently drawn up some simple rules by which the nutrients in greenstuffs can be conserved to the utmost. Fat-soluble vitamin A is unlikely to suffer damage. Water-soluble vitamins B and C are the vitamins most likely to be lost on preparation and cooking because: 1, being water-soluble, they are dissolved out by soaking or cooking water; they also run out in the watery juice; 2, raw vegetables contain enzymes, which are active in destroying the vitamins, particularly if the raw foodstuff is left lying about after being bruised or cut up. These substances which destroy the vitamins become more active as the temperature rises during cooking up to a point at which they themselves are destroyed. This point of destruction is only a few degrees below boiling temperature; 3, the water-soluble vitamins are themselves also destroyed by heat to an extent which depends on the length and severity of the heating; 4, the water-soluble vitamins are found to diminish in amount in foods left standing after they are cooked; 5, salt or sugar added to vegetables before cooking lessens the amount of destruction under conditions described in 3 and 4; 6, vitamins B and C are more stable in the presence of acid, which is sometimes added as vinegar. The addition of alkali (carbonate or bicarbonate of soda) will, on the other hand, hasten the destruction of the vitamins. Green vegetables should be obtained as fresh as possible and kept in a cool damp place in order to reduce wilting. Crushing or bruising during transport or handling should be avoided, and if vegetables are soaked, salt water (2 teaspoonfuls to 1 pint) should be used; if shredded or chopped prepare immediately. The smallest possible amount of water should be used for cooking, and it must be boiling before the vegetables are put in. Salt should be put into the water before vegetables are added. The following methods are recommended:—

1. Boil for shortest time in small quantity of boiling salted water. Use water left over for boiling other batches and for addition to soups and gravies.
2. Slice the fresh vegetables into ribbons about 2-3 in. long by $\frac{3}{4}$ in. wide and cook briskly for $\frac{1}{2}$ -1 minute in a small quantity of hot oil or dripping to which salt has been added (2 teaspoonfuls oil and $\frac{1}{2}$ teaspoonful salt to an average sized cabbage). Add a small quantity of boiling water ($\frac{1}{2}$ -1 cupful) and stew for about 10 minutes in a closed container. Keep lid on so that no steam escapes. When vegetables are cooked only a little water should be left. In hay-box cookery vitamin C is destroyed, so that this method should not generally be used for cooking green vegetables.



SKELETONS AND MODELS FOR SCIENCE STUDENTS



(1) Hand-coloured plaster model illustrating mitotic cell division; (2) Complete mounted skeleton of dogfish; (3) Plaster casts of amphibia and reptilia; (4) Plaster model showing transverse structure of typical dicotyledon stem (sunflower); (5) Mounted human skeleton; (6) Mounted evolutionary series of brains (from earthworm to monkey); (7) Model of half rabbit; (8) Skeleton of whale (82 ft. long), "fleshed" and mounted under supervision of Mr. T. Gerrard and delivered to the National History Museum.

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(From "The Trade Marks Journal," July 23, 1941)

- "CREMISSA"; for perfumes, soaps, mouth-washes, toilet preparations, etc. (3) (IV). By Relphs, Ltd., 14 Broadway, Leigh-on-Sea. 615,114.
- "VELL-O-CHEM"; for veterinary and sanitary substances, disinfectants, weed and vermin killers (5) (IV). By "Compo," Ltd., Albert Works, Crescent Road, Dukinfield, Cheshire. 614,641.
- "SHOO"; for pharmaceutical, veterinary and sanitary substances, disinfectants, vermin destroyers (5) (IV). By Sales Affiliates, Ltd., Elstree Way, Boreham Wood, Herts. B614,654.
- "RABVITA"; for veterinary preparations and animal foodstuffs (5) (31) (IV). By E. G. Hughes, Ltd., Peru Street, Adelphi, Salford, Manchester. 614,873/4.
- "BALMOSA"; for pharmaceutical and veterinary preparations (5) (IV). By Oppenheimer, Son & Co., Ltd., Handforth Laboratories, Clapham Road, London, S.W.9. 614,923.
- "EPHISOVIN"; for inhalation liquids for catarrh, hay fever, etc.; and "MONEEDA"; for pharmaceutical preparations (5) (IV). By Moore Medicinal Products, Ltd., 7 Bon Accord Square, Aberdeen. 614,926/32.
- "PERMALAST"; for elastic bandages (5) (IV). By Viscolax, Ltd., Levant Mill, Padiham, Nr. Burnley. 614,973.
- "KAPPAXAN"; for pharmaceutical preparations (5) (IV). By Bayer Products, Ltd., 14 Waterloo Place, Pall Mall, London, S.W.1. 615,052 (Associated).
- "SIFIC"; for pharmaceutical and veterinary preparations (5) (IV). By B. J. Gibby, 39 High Street, Narbeth, Pembrokeshire. 615,187.
- "GLADIATOR"; for wire shields to protect face (9) (IV). By G. F. Ryan & Son, 16-24 Low Friar Street, Newcastle-on-Tyne. 614,413.
- "CUSHMATIC-AID" (word "Aid" disclaimed); for surgical trusses (10) (IV). By F. F. Gordon, Carlisle Surgical House, Paternoster Row, Carlisle. 615,063.
- "DEX"; for mineral waters, syrups, etc. (32) (IV). By Reynolds & Branson, Ltd., 13 Briggate, Leeds. 614,945.

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(Under Section 3 of the Patents, Designs, Copyright and Trade Marks (Emergency) Act, 1939)

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Section 36 (3) and Rules 6 to 8

To Schedule IV (with amalgamation):

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VOL. CXXXV August 16, 1941 NO. 3210

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Education and the Pharmacist's Future

THE claim that the syllabus committee had done a good job of work was conceded in our Educational Number last year. So far, there appears no reason to revise this view. The new syllabuses represent an accepted minimum compatible with the demands of modern pharmaceutical knowledge and practice. Although the Regulations were not approved by the Privy Council until March 20 of this year, teachers have been working in accordance with the revised syllabuses. War-time, for obvious reasons, makes it difficult for pharmacy teachers to assess the value of the deletions, redistributions and additions made, but there is evidence that many are of the opinion that the academic year demanded for preparation for the Chemist and Druggist Qualifying examination is too short.

It seems improbable that the conscientious student, having to master five subjects in readiness for the final test, will have sufficient time for recreation and College social activities. If so, there is a decided loss to him of that cultural background so important in his future career. It is likely that the Council of the Pharmaceutical Society will have to pay some attention to this difficulty and find a solution in readiness for after-war conditions. A lengthening of the time demanded for study is one solution, and this may lead to a reopening of the question whether shop training should not be postponed until the completion of the academic course. This procedure is not claimed as a gospel of perfection by its advocates, who see in it, however, an improvement on existing conditions. There is a noticeable increase in the number of supporters for this policy, particularly among the younger pharmacists, who are dissatisfied with training received during the period of apprenticeship. The trouble lies in the evolution of modern business, and not with the employer, who endeavours to carry out his part of the contract conscientiously, but training of the kind obtainable forty or more years ago is not usually available nowadays. Where there is some resemblance in the type of business with that in which formerly a sound apprenticeship could be counted on, then it is often found that the employer is not disposed to take apprentices.

The trend of pharmacy in the future is difficult to foreshadow, but an increase of more than a million insured persons will have to be considered, and still further additions are practically certain. After the war, a State Medical Service of the widest character will most probably come into being. Concurrently, pharmacists will find competition with the great stores and specialists increasingly difficult. This consideration suggests that greater attention will have to be paid to the professional side and its remuneration. For this reason, any scheme of pharmaceutical education should not lose sight of the development of social qualities, personality, and future civic usefulness. The young pharmacist will have to make the

fullest use of branch organisations and pull his weight therein, to use his eloquence in forcing constructive plans, and not alone in destructive criticism of the Council and all its works. Unity of effort in each locality will result in that bold front necessary, when the time is ripe, to demand proper remuneration for the training, skill and responsibility attached to the practice of pharmacy.

The Government and Retail Trading

EARLY in May the Board of Trade appointed a Retail Trade Committee "to examine the present problems of the retail trade in goods other than food, having regard both to the immediate needs of the conduct of the war and the position after the war and to report." On May 30 this committee sent out to retail trade associations and other similar representative bodies a questionnaire of six sections containing twenty-four questions, together with a memorandum of observations in which it was stated the Committee were unanimously of opinion "that there are four main factors in the situation which must be squarely faced":—

(1) There is a substantial reduction in the goods (other than food) available for sale, which might be very roughly estimated at 50 per cent. The full effect of this reduction has not yet been felt owing to the existence of a "cushion" of accumulated stocks, now rapidly diminishing.

(2) The necessity for keeping the price level as stable as possible. The Government have repeatedly drawn attention to the importance of this, and have recently taken powers in the Goods and Services (Price Control) Bill to exercise a much more drastic control of prices than hitherto.

(3) The Government have made it clear that they will not give compensation for loss of business to traders any more than to any other section of the community.

(4) The diversion of large numbers of workers from retail distribution to the Services and war industries.

The Committee stated that replies to the questionnaire made by trade organisations would be treated as confidential, and asked that replies should be sent in "as rapidly as possible." For some reason the release to the Press of the questionnaire and memorandum was delayed two months, by which time, no doubt, most of the trade organisations had sent their replies to the Committee, and, possibly, by this time the Committee have sent their report to the Board of Trade. Before commenting on the matter it is necessary to make one more quotation from the Committee's memorandum, which reads as follows:—

"The Committee are anxious to obtain the views of responsible trade associations on the question whether schemes to insure a fair distribution of the available commodities could be organised in different parts of the country by voluntary agreement and co-operation among the retail traders themselves. Such schemes may, almost of necessity, involve the withdrawal, at least temporarily, of a proportion of the existing traders. In that event the scheme would have to include provision for compensation to those traders who withdraw voluntarily from business, and the Committee think that it should be possible for this compensation to be provided by those who remain in business as they would, under the scheme, enjoy an increased share of the available commodities without increase in their overhead standing charges. It is obvious that a solution on these lines demands a large measure of agreement and cordial co-operation among traders, both big and small, and the committee are therefore sending out the accompanying questionnaire and invite your kind assistance in providing them with facts and figures to give an accurate picture in each of the main divisions of trade and enable the committee to test trade opinion on the possibility of establishing the broad lines of a policy likely to meet with fairly general approval."

We assume that some organisation representative of retail chemists received this memorandum and questionnaire last May, possibly the National Pharmaceutical Union. If the N.P.U. was approached we do not know what action, if any, was taken. Looking through the questionnaire, we believe it would not be possible for any trade organisation, however closely in touch it may be with its members, to reply to many of the points raised, except largely by guesswork. How, for instance, can a central trade body, situated in London, reply to the question: "Do you consider that steps should be taken to reduce the number of shops?" Such a question put, for instance, to the N.P.U. in respect of their members' businesses in all towns and cities in the country could only be answered by reference to the traders affected. Even the opinions of branch committees, which would vary very considerably, would be unreliable as a true guide unless based on the views of the members of the branches.

The report of the Retail Trade Committee to the Board of Trade must be based on whatever replies they may have received from

central trade bodies. We trust the release of this report to the Press will not be delayed two months. Whatever further opinion the Committee may express on the subject of restricting retail trade, or proposals it may make to enforce some form of limitation of shops, their views will have to be substantially discounted on account of the casual and scant investigation on which they are based. Certainly, before any statutory action is taken to restrict freedom of retail trade this very important matter will have to receive a great deal more consideration. There are many other interests to be considered beyond those of the retail trader, as, for instance, local authorities and, by no means least, the general public.

We have yet to be convinced that the surest test for the need or otherwise of a retail business of any kind is a plain matter of economics, both in times of war and peace. If a shop pays it is justified, and it is providing a service to the public. If it is being run at a loss it is soon closed down. The lack of supplies for sale in retail shops has already been the cause of thousands of small shopkeepers going out of business; in thousands of other instances the proprietors have been called-up and have had no option but to close down. Where the evacuation of the civilian population from danger areas has been considerable there is no excess of retail traders, due to so many of the business premises having been bombed, while other traders have found it impossible to carry on and have closed down, at least temporarily. In the reception areas, where populations have doubled and trebled, the increase in shops has been nothing like the same proportion.

In war-time there is a constantly moving population, particularly for industrial and war-production needs. There is hardly a town in the country that is static in this respect and there is not likely to be during the period of the war. Let us assume an Order is issued by the Government limiting the number of shops in a town, and this results

in fifty shops being compulsorily closed. One of the war departments then decides to erect a munition factory in that town and sends down one or two thousand building operatives. When the building is completed some five or six thousand workpeople are employed there, most of whom would be newcomers to the town. This has happened in many towns, and, without any enforced closing, the normal shopping facilities of the town have in consequence of this sudden and unexpected influx been inadequate. For many years after the cessation of hostilities no town in the country will be able to estimate its requirements in the matter of shops. There are bound to be enormous and widespread residential building developments, and if shops are to be "licensed" who is to say what new shops are to be allowed in areas where such developments take place?

So far as chemists' shops are concerned we are of opinion that, taking into account the absolute need for keeping up an adequate health service for the public and the fact that a considerable number of chemists have, for one reason or another, already gone out of business, and that shortly some 7,000 others are to be called-up, any war-time limitation of shops that may be introduced is not likely to be applied to chemists' businesses.

We have strong views on the liberty of the subject, both socially and in business, and this inquiry which has been set on foot will need to be watched with the utmost vigilance, particularly by the small trader, for it will be noted that included in the terms of reference the Committee is asked to report on "the position after the war." For the period of the war it may be that the Board of Trade will find other and more urgent and important matters to tackle, and the Retail Trade Committee's report may be pigeon-holed. Their findings and proposals, however, which must be made public without undue delay, may prove to be a delayed action bomb timed to explode immediately the war ends.

RECENT RESEARCH

An Active Principle in Raspberry Leaf.—Burn and Withell ("Lancet," July 5, p. 1) have tested extracts of raspberry leaves for their action on the uterus both *in situ* and when isolated. They found that a principle is present which causes relaxation of the muscle of the uterus when this is tonically contracted, and which diminishes the force and frequency of rhythmic contractions. A general survey of the action of raspberry-leaf extracts on other tissues was also made. Active extracts were made as follows:—(a) By infusing the dried leaves with boiling water, using 100 mls. of water to 10 gm. of leaf. This was allowed to stand for half an hour and squeezed through muslin. The infusion was concentrated by evaporation at 40° C. under reduced pressure until the activity of 2 gm. of leaf was present in 1 ml. of infusion. (b) By evaporating to dryness an infusion prepared as in (a). Approximately 1 gm. residue was obtained from 10 gm. of leaf. Of the residue 1 gm. was taken up in 5 mls. of distilled water, and 5 mls. of absolute alcohol was added. This produced a precipitate of inactive material which was removed by filtration, and the filtrate was evaporated to dryness. Of the residue 1 gm. was equivalent to approximately 20 gm. leaf. (c) By preparing an infusion as in (a), and adding basic lead acetate in amount just insufficient to throw down all precipitable matter. The filtrate was evaporated to dryness. (d) By treating an infusion prepared as in (a) (before concentration) with Norit charcoal, filtering and evaporating to dryness. The action of raspberry-leaf extracts on the uterus was examined by intravenous injection into spinal cats, and into cats anaesthetised with chloralose. Injection of an amount of extract equivalent to 2 gm. of leaf into the external jugular vein produced a relaxation of the uterus, accompanied by a slight rise of blood-pressure, but the effect on the uterus was variable. Occasionally relaxation was followed by contraction, and sometimes there was relaxation, contraction, and further relaxation.

Extracts made by process (b) had no great effect on blood-pressure, but extracts prepared as in (c) often caused an initial fall of blood-pressure followed, especially in spinal cats, by a rise which was sometimes large. Several experiments were necessary to establish that the suprarenal glands played no part in the action on the uterus, and that complete relaxation, with cessation of rhythmic contractions, was produced in the absence of these glands. Action on intestine was tested by inserting a small balloon into the duodenum of a cat. The balloon, filled with water, was connected by a catheter to a piston recorder which recorded the changes of pressure in the balloon. Injection of raspberry-leaf extract caused a fall of pressure in the balloon due to arrest of the intestinal contractions, and relaxation of the musculature which persisted for three minutes. Injection of raspberry-leaf extract caused no contraction of the spleen volume in a spinal cat. Extracts prepared by method (a) had a slight depressant action on the heart of the cat when isolated and perfused by Langendorff's method.

Toxicity was tested by administering the extracts to mice both by mouth and intravenously. The activity of approximately 4 gm. of leaf in doses of 0.5 mls. had no harmful effect on mice when given by mouth. When injected intravenously the mean lethal dose was 0.1 ml. per 20 gm. of mouse, corresponding to about 0.4 gm. of leaf. Mice injected with a lethal dose had convulsions and died. Convulsions were observed to follow the intravenous injection of extracts prepared by method (a) into cats. The relaxation produced in the body was found to increase with successive doses.

Absorption of Enteric-coated Pills.—Radioactive methods were adopted by Lark-Horovitz and Leng ("Nature," May 10, p. 580) to test the efficacy of enteric-coated pills to resist destruction of the gastric juices yet permit absorption of the medicament in the small intestines. With radioactive materials as fillings, any crack in the coating is detected at once by the appearance of radioactive material in the blood stream (measured by the activity in the hand), and the capsule can be followed on its way through the digestive tract until it is dissolved. The authors used ordinary gelatin capsules filled with about 0.3 gm. of radioactive sodium chloride. The initial activity of the sample was of the order of 500-700 μ C. The capsule was coated with a mixture of shellac, castor oil and alcohol, administered orally. It was followed through the digestive tract by the aid of a movable bell-type counter. Simultaneously, the activity of one hand of the patient was measured to determine the movement when the active material had reached the blood stream. The first sign of activity in the hand was detected a few minutes after intake; it then increased steadily to reach a constant value in about three hours. The pill was located for about one hour in one position in the stomach; it then moved towards the pylorus and was located again in the small intestines. After 2½ hours the movable counter indicated that the pill had dissolved and the activity was spread over a large area. The activity now appeared in the hand, which was, up to this time, entirely inactive. Activity reached a maximum after about eight hours, and then decreased to equilibrium value. Earlier indications of activity occurred with a pill which apparently was leaking, for activity in the hand could be detected half an hour after intake. The pill itself could be followed for about eight hours, when it finally dissolved in the intestines. At this time the activity in the hand was raised, reached a maximum in about one hour, and fell again to a level higher than the first one, since now the total activity was distributed throughout the body. Results indicated that the majority of the hand-made pills tested dissolved in the small intestines. The authors direct attention to the fact that the curve for the time-rate of absorption from the stomach is entirely different from the absorption-curve from the small intestines. In the first the absorption reaches a level that remains constant for hours, and decreases only after a large amount of the salt has been excreted.

EDUCATIONAL INFORMATION

PHARMACY

GREAT BRITAIN

Statutory Qualifications.—In order to practise pharmacy with full responsibility for dispensing, compounding and retailing of poisons it is necessary to possess one of two statutory qualifications and be registered in accordance with the requirements of the Pharmacy and Poisons Act, 1933. The final examinations by which these statutory qualifications are obtained are:—

A. The Pharmaceutical Chemist Qualifying examination.

B. The Chemist and Druggist Qualifying examination.

Section 3 of the Pharmacy and Poisons Act, 1933, restricts the use of the titles "Pharmaceutical Chemist" or "Pharmacist" to those who have passed A and "Chemist and Druggist,"

"Druggist," "Pharmacist" or "Member of the Pharmaceutical Society" (M.P.S.), to those who have passed B.

The Pharmaceutical Chemist is permitted to use any of the titles used by B if he so desires; the title "Chemist" may not be used in connexion with the sale of goods unless a person is registered under the Act. The academic training required for the Pharmaceutical Chemist is more exacting than that for the Chemist and Druggist qualification, being of three years' duration against two for the latter. With certain modifications, the remaining requirements are identical. Candidates for either of these qualifications must:—

(a) Pass a recognised preliminary examination.

(b) Notify this fact to the Registrar of the Pharmaceutical Society. The fee for registration as apprentice or student is £4 4s.

(c) Pass an intermediate examination including the subjects chemistry, physics and biology, following attendance at lectures and practice for an academic year at a recognised teaching institution.

(d) Serve an apprenticeship (articled pupilage) of 4,000 hours (usually three years).

(e) Pass a final examination in pharmaceutical chemistry, pharmaceuticals, pharmacognosy, physiology and forensic pharmacy subsequent to attendance at lectures and practice at a recognised teaching institution for a period of (i) two academic years in preparation for the Pharmaceutical Chemist Qualifying examination, or (ii) one academic year in preparation for the Chemist and Druggist Qualifying examination.

The following important points should be observed: Registration as an apprentice or student must precede indentured apprenticeship, otherwise the time will not count. Apprenticeship must precede the final year's training for the Chemist and Druggist Qualifying examination, but it is advisable to take the course and pass the Intermediate examination before apprenticeship. Apprenticeship may follow the passing of the final examination for the Pharmaceutical Chemist qualification, all other regulations having been satisfied. Either of the Qualifying examinations may be passed before attaining the age of twenty-one years but, in order to practise, it is necessary to register and pay certain fees to the Registrar of the Pharmaceutical Society, and certificates of registration are not issued to graduates under twenty-one years of age.

University Degrees in Pharmacy.—The Universities of London, Wales, Manchester and Glasgow confer degrees on those who have satisfied the regulations and passed the necessary examinations. These degrees are B.Pharm. (London or Wales), B.Sc. (Manchester or Glasgow). A degree granted by a University does not entitle to registration by the Pharmaceutical Society, but Regulations provide that any registered apprentice or student who has served the period of practical training (apprenticeship) and produces to the registrar a notification of having passed the Final examination for the degree of Bachelor of Pharmacy of the University of London, or a corresponding degree of any other University approved by the Pharmaceutical Society's Council, shall be deemed to have passed the Pharmaceutical Chemist Qualifying examination in the subjects

set out in the final certificate, and shall be entitled to enter the examination of the Society in forensic pharmacy and, on passing, be entitled to registration.

Pharmaceutical Vocation.—Alternative careers made possible by holding the qualification are: (1) The sale and management of statutory poisons, sale of drugs, and dispensing and compounding of medicines (including N.H.I. dispensing, etc.); (2) hospital and institutional practice of pharmacy; (3) wholesale or manufacturing works management in pharmacy; (4) teaching of pharmaceuticals in technical institutes or other special requirements where training in pharmacy may be required as the nucleus. The first step in considering the vocational possibilities of pharmacy is to obtain a knowledge of the exact requirements. The present Educational Number of the C. & D. sets out the important facts, with suitable comments on each subject. Slightly abbreviated syllabuses

are included but full details may be obtained from the Registrar, The Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1. The regulations may advantageously be read in conjunction with the following comments:—

PRELIMINARY EXAMINATIONS.—The matriculation of a recognised university is the simplest method of approach. Evidence from other examining bodies that a student has successfully passed their examinations is accepted under specified conditions. Such evidence includes: School Certificates of Bristol, Durham, Oxford, Cambridge, Central Welsh Board, etc., where five subjects have been taken at once with credit, or six at two examinations with credit; or Higher School certificates, mathematics in all cases being compulsory; the Leaving Certificate of the Scottish Education Department, provided it is comprised within one of the groups specified; the Senior Certificate of the College of Preceptors, provided that the student passed with credit in the subjects specified. A complete list of certi-

ficates that may be accepted can be obtained from The Registrar, Pharmaceutical Society. Certificates other than those specified can be accepted only by the Pharmaceutical Council itself. There is a proviso that a person over twenty-five years of age may apply to be admitted to a special preliminary examination and, if successful, to registration as an apprentice or student, the fee being £6 6s., which includes the registration fee. Particulars of this can be obtained only from the Registrar.

APPRENTICESHIP (ARTICLED PUPILAGE).—Registration as an apprentice or student is made only under indentures, a draft form being obtainable from the Registrar termed "Draft Articles of Pupilage." This must be completed by the prospective employer, parent or guardian, and by the pupil. An appendix illustrating the setting-out of rules for a practical course of study is attached to the indentures, and the employer, it states, shall be required from time to time, if requested, to furnish information for the Society's inspectors. In any question arising on the observance of the rules the decision of the Council is final.

EXAMINATIONS.—These are written and practical with an oral test in pharmacy in Chemist and Druggist Qualifying examination. The written parts are held at appointed centres and the practical in London or Edinburgh, the choice lying with the candidate. During any practical part of the examinations an examiner is entitled to ask questions of the candidate.

The Technical Examinations.—The Board of Examiners normally sits in London and Edinburgh for the practical part in January, April, July and October for the Intermediate examination (formerly called Preliminary Scientific) and the Chemist and Druggist examination, and in January and July for the Pharmaceutical Chemist examination. Prior to the practical part the written portion is taken at specified centres. Provincial centres (for practical sections) during the war are at Brighton, Cardiff, Nottingham and Manchester.

The Intermediate Examination.—As indicated above, this is the same for the Chemist and Druggist as for the Pharmaceutical

TO QUALIFY AS A CHEMIST AND DRUGGIST

1. *Entrance Examination.*—School Certificate at least; pass in Mathematics; not less than five credits at same examination.
2. *Registration as Apprentice or Student.*—Send above certificate to Registrar of Pharmaceutical Society, with £4 4s.
3. *Study and Intermediate Examination.*—One academic year (three terms) at an approved school. Examination fee: £6 6s.
4. *Apprenticeship (Articled Pupilage).*—4,000 hours in registered pharmacy or approved institution (three years usually).
5. *Study and Qualifying Examination.*—One academic year (three terms) at an approved school. Examination fee: £12 12s.
6. *Registration with Pharmaceutical Society.*—In order to sell poisons by retail, etc.

Chemist courses, and includes three subjects: Chemistry, physics and biology. A candidate must have been registered as an "apprentice or student," and subsequently have attended an approved systematic course of instruction of at least twenty-five hours weekly during each term of a session of three terms (an academic year) and have a certificate signed by the responsible person that this has been done to the satisfaction of the governing authority. Candidates who have passed the Preliminary Scientific examination under regulations in force prior to 1925, Intermediate examinations (or their equivalents) of Universities of England, Scotland and Wales, first or subsequent examinations recognised by the General Medical Council and approved by the Pharmaceutical Society, or Higher School Certificate examinations in the proper subjects, are permitted to proceed to the final without sitting for the Intermediate or attending a College course in preparation for it, provided all other regulations are satisfied and a fee of £4 4s. is paid* (£3 3s. if the person is deemed to have passed in two subjects). A candidate who has failed to satisfy the examiners owing to weakness in one subject only may be referred and will then only have to present himself at a future examination in that subject alone, but under such conditions as to date of entry or further instruction, etc., as may be prescribed by the examiners; evidence that such conditions have been satisfied must be submitted to the Registrar. Candidates must bring their laboratory note-books in all subjects for inspection if required, and in the practical sessions they may be asked questions if the examiner thinks fit. The fees are: First entry for Intermediate examination, £6 6s.

* First entry in one subject by candidate credited with two others as above, £3 3s.; re-entry in one or all subjects, £4 4s.

The examination consists of the following: One written session and one practical session, each of three hours' duration, in each of the subjects chemistry and physics. In biology, one written session (covering botany and zoology), one practical session in botany, and one practical session in zoology, each of three hours' duration. (Total, twenty-one hours.)

Syllabus (slightly abbreviated).—**CHEMISTRY.**—*Theoretical:* Chemical principles; ionisation, conductivity, solubility product, osmotic pressure, etc. Hypothesis of Avogadro and the principal laws; endothermic and exothermic reactions; mass action. Metals, non-metals, preparation or extraction and properties of main non-metallic and metallic elements, and their principal compounds. Chemical calculations.—*Practical:* Identification of more important non-metallic elements, principal metals (listed) and salts. Analysis of mixtures of not more than two basic and two inorganic acid radicals. Volumetric analysis with inorganic acids, alkalis, potassium permanganate, silver nitrate.

PHYSICS.—*Theoretical:* Conservation of energy, force, work, gravitation, simple machines, Boyle's law, atmospheric pressure and various pumps, surface tension, etc. Heat, including usual laws; specific and latent heat, temperature, vapour pressure, etc. Light, laws of reflection and refraction; the eye as an optical instrument; dispersion; ultra-violet radiation. Static electricity; influence machines; condensers; electric currents, including Ohm's law; various meters, metre bridge, etc.—*Practical:* Includes the use of the vernier; specific gravity, determinations; coefficients of expansion; melting points, etc. Refractive indices; moments; focal lengths. Magnetic force and tracings; E.M.F. and resistance; galvanometers, ammeters and voltmeters.

BIOLOGY.—**I. BOTANY.**—*Theoretical:* External morphology; bulbs, corms, tubers, etc.; anatomy of roots, stems and leaves; primary and secondary growth; pollination and fertilisation development of embryo, seed and fruit; dispersal; germination. Assimilation, respiration, transpiration, etc. Saprophytism and parasitism; cell division and structure; classification and study of certain plants and orders, e.g. *Chlamydomonas*, *Mucor*, *Pellia*, *Pinus*, angiosperms, etc. Six orders, including *Rosaceae*, *Umbelliferae*, etc.—*Practical:* Dissection and description of plants or parts, microscopical preparations and experiments in physiology.—**2. ZOOLOGY.**—*Theoretical:* Cells and tissues; cell division and grouping. Structure, physiology and life-history of *Amoeba* and *Paramecium*. Parasitism and malaria; tape-worm. Life history, etc., of *Hydra*, earthworm and cockroach. Vertebrates, including frog and rabbit (skull of dog being substituted for that of rabbit). Sexual and asexual reproduction (in animals named), heredity variation, evolution.—*Practical:* To dissect and describe earthworm, cockroach and rabbit; identify and describe microscopical preparations of *Amoeba*, *Paramecium*, *Hydra*, earthworm, tape-worm, mouth of cockroach, blood and skin of frog and a mammal, intestine of frog, parts of skeleton rabbit, etc. Stages in development in frog. To prepare simple permanent mounts.

The Chemist and Druggist Qualifying Examination.—The Intermediate (or its equivalent) having been passed and 4,000 hours, spent in training in open shop, approved institution or wholesale laboratory, the final collegiate course may be taken. This course is subject to the same regulations regarding its systematic character, hours and length of duration (an academic year), also certification of satisfaction of governing authority, as under the Intermediate course. The subjects are pharmaceutical chemistry, pharmacutics, pharmacognosy, physiology, forensic pharmacy. Candidates may be referred in one subject after examination, as in the Intermediate examination, and the examiners may impose similar requirements.

Rules regarding presentation of note-books in all subjects at examination, as well as the power of the examiner to ask questions during practical sessions, are similarly imposed.

The fees are: First entry for Chemist and Druggist Qualifying examination, £12 12s.; fee for re-entry, whether for referred subject or all subjects, £6 6s.

The following examination arrangements may be noted:—**Pharmaceutical Chemistry.**—One written session and one practical session, each of three hours' duration. **Pharmacutics.**—One written session and one practical session, each of three hours' duration, followed by short oral period. **Pharmacognosy.**—One written session of three hours' duration and a practical session of two hours. **Physiology and Forensic Pharmacy.**—One written session of three hours' duration on each subject. (Total, twenty-three hours + oral.)

Syllabus (slightly abbreviated).—**PHARMACEUTICAL CHEMISTRY.**—*Theoretical:* General principles of inorganic chemistry; elements and compounds used in pharmacy frequently and their preparation, purification and properties. Organic chemistry; general principles, preparation and properties of main types of aliphatic and simpler aromatic (one benzene ring) compounds, with special reference to those in frequent use in pharmacy. Tests of purity, and chemical assays of the B.P.—*Practical:* Preparation of such organic compounds as chloroform, ether, acetanilide, etc. Identification of organic compounds up to alkaloids, glycosides, and aliphatic compounds of simple constitution, also elements and characteristic groups and reference to organic class. Melting points, boiling points and specific gravities and limit tests in B.P. Solutions of alkaloidal salts and quantitative determination of alkaloids, and volumetric assays of the B.P., excluding alkaloidal assays, etc.

PHARMACEUTICS.—*Theoretical:* Pharmaceutical operations and general principles, e.g. vapour pressure, viscosity, pH, surface tension, disperse systems, etc. B.P. galenical preparations, storage; use of bacteriostatics and fungistatics. The principles underlying preparation of sterile medicaments and materials. B.P. serums, vaccines, and bacterial derivatives, and their preparation; and the biology of bacteria affecting them. Standardisation of surgical dressings. Interpretation and translation of prescriptions. Maximum doses of B.P.—*Practical:* Ordinary pharmaceutical operations, including B.P. galenicals. Dispensing and completion of prescriptions; detection of unusual doses; also preparation and dispensing of sterile medicaments and materials.

PHARMACOGNOSY.—*Theoretical:* Cultivation, collection, preparation for market, commerce and storage; changes occurring in drying, storage and comminution; macroscopical characters, biological and geographical sources, commercial varieties and adulterants of drugs. (A list of crude drugs given comprises those of the B.P.) Types and significance of standards and chemical tests in B.P. and B.P.C., as applied to drugs in the list. Extraction and constituents, etc., of clove, lemon, cod, olive and castor oils. Microscopy of certain starches, calcium oxalate and epidermal trichomes in selected drugs. Cellulose, lignin, fibres for surgical dressings and their micro-chemical tests.—*Practical:* Dissection, description in entire or broken condition, identification by macroscopical characters, and qualitative chemical tests, of listed drugs; their biological and geographical sources. Microscopy of calcium oxalate and epidermal trichomes of certain drugs, as well as starches. Identification of fibres used in bandages, gauzes, lints, tissues, towels and wools.

PHYSIOLOGY.—Elementary knowledge of the properties of skeletal, visceral and cardiac muscle, of composition, properties and functions of blood; of the heart vasomotor system; blood pressure. Physiology of alimentary tract; the salivary, gastric, pancreatic and biliary secretions. Biochemistry of common food substances (meat, eggs, milk and bread). Functions of posterior pituitary body, thyroid pancreas, suprarenals; physiological properties of their extracts or hormones. Biological assays of B.P.; their general principles (excluding assays of vitamins, sera, vaccines and bacterial derivatives).

FORENSIC PHARMACY.—Poisons and Pharmacy Acts (1852-1933). Dangerous Drugs Acts. National Health Insurance, Shops, Protection of Animals, Food and Drugs, Venereal Diseases, Cancer, Therapeutic Substances Acts. Sale of spirits (including methylated); medicated wines. Sale of abortifacients. Parts of such Acts relevant to the practice of pharmacy in shop and hospital.

Pharmaceutical Chemist Qualifying Examination.—Held twice a year in January and July. Entrance and Intermediate examinations required to be passed are the same as those for the Chemist and Druggist Qualifying examination; 4,000 hours' apprenticeship period may be taken after the examination for the Pharmaceutical Chemist qualification. It must be emphasised that two academic years, instead of one, are now required before sitting for the final. Hours per week, duration of sessions per year and all other rules leading to entrance are identical with those under the Intermediate and Chemist and Druggist Qualifying examinations. Subjects for examination are the same as in the Chemist and Druggist course. Certain University Degrees approved by the Council of the Pharmaceutical Society may qualify the holder for registration as a Pharmaceutical Chemist provided that the statutory examination in forensic pharmacy be passed. The fees are: First time of entry (or, to holders of University degree, etc., acceptance of registration), £12 12s.; re-entry for referred subject or all subjects, £6 6s.

The following examination arrangements should be noted: **Pharmaceutical Chemistry.**—Two written sessions (three hours each);

ne practical of three hours, and one practical of six hours. *Pharmaceutics*.—Two written sessions (three hours each); three practical sessions (three hours each). *Pharmacognosy*.—One written session (three hours); two practical sessions (three hours each). *Physiology*.—One written and one practical session (three hours each). *Forensic pharmacy*.—One written session (three hours). Total, forty-eight hours.

Syllabus (abbreviated).—**PHARMACEUTICAL CHEMISTRY**.—*Theory*: History of chemistry from A.D. 1750. Principles of physical chemistry treated in an elementary manner with reference to their pharmaceutical application. This includes all the usual properties, e.g. surface tension, viscosity, optical activity, colloidal state, adsorption, etc., together with the kinetic theory of gases, deviation from gas laws, equilibria and law of mass action; determination and significance of *pH* values and oxidation-reduction potentials, etc. Inorganic and organic chemistry are treated more fully than in the Chemist and Druggist course, the latter subject including the following: Fixed oils and fats, waxes, soaps, glycosides, steroids and urethanes, terpenes, medicinal dyes, proteins, adrenaline, hydroxine, vitamins A, B₁ and B₂, C and D, and synthetic drugs. Qualitative analysis and chemical assays of crude drugs and pharmaceutical preparations. Standards and tests of conformity therewith.—*Practical*: Familiarity with common methods of experiment and the preparation of inorganic and organic compounds; identification, or reference to class, of pure substance or admixture, tests for impurities, determination of physical constants used as criteria of purity. Quantitative analyses of inorganic and organic substances. Quantitative determination of active constituents in drugs preparations, essential oils, etc., all in application to frequent pharmaceutical usage.

PHARMACEUTICS.—*Theory*: History of pharmaceutics from A.D. 1600. Scope of remainder, similar to that in Chemist and Druggist course but more exacting; pharmaceutical operations as applied to manufacture; factors involved in transferring small-scale operations to a large scale; principles underlying tests for sterility of sterile medicaments, standardisation of sera, vaccines and bacterial derivatives, efficiency of disinfectants, and tests for sterility of surgical dressings, ligatures and sutures. Prescription reading and doses, and principles underlying practical work as in Chemist and Druggist course. *Practical*: Similar wording to that under Chemist and Druggist course but with addition of tests for sterility of sterile medicaments and materials, and counts of viable and dead bacteria.—*French or German*: Translation into English, with aid of dictionary, from pharmacopœias.

PHARMACOGNOSY.—*Theory*: List of drugs to be studied and the requirements regarding cultivation, collection, etc., storage, macroscopical examination and sources are the same as in Chemist and Druggist course but more exacting. The microscopical work is extended to the examination of crude drugs, and isolation and identification of tissues and cells; entire and powdered drugs in italics in the list, and microscopical measurements. Evaluation of crude drugs is included.—*Practical*: In addition to statements under Chemist and Druggist course the candidate has to recognise in entire condition crude drugs in frequent use in pharmacy; microscopic work extends to description of structure and examination of powdered drugs and adulterants of drugs in list.

PHYSIOLOGY.—In addition to Chemist and Druggist requirements the following: Formation of blood, structure and enumeration of corpuscular elements; formation and functions of lymph; respiratory exchanges; movements of alimentary tract; sources and physiological properties of vitamins; body heat; the kidneys and normal urine; central and peripheral nervous systems; constitution of mixed spinal nerve; autonomic nerves; structure of testes and ovaries; mammalian reproduction. Action of certain drugs, e.g. chloroform, strychnine, adrenaline.—*Practical*: Recognition and description with diagrams of histological preparations of any tissues or organs mentioned in foregoing syllabus, and methods employed in demonstrating physiological processes in them. Simple chemical manipulations and experiments.

FORENSIC PHARMACY.—Syllabus identical with that of Chemist and Druggist Qualifying examination.

Dates of Entry.—For Intermediate or Chemist and Druggist Qualifying examinations: On or before the first day of March, June, September or December. For Pharmaceutical Chemist Qualifying examination: On or before the first day of December or June. Fees are returnable if candidate withdraws before last day of entry or in case of absence from examination on presentation to the Registrar of satisfactory proof (e.g. medical certificate in case of illness).

Diploma in Biochemical Analysis.—A diploma is granted by the Pharmaceutical Society in this subject after a systematic course and subsequent examination. The fee for the examination is £5 5s.; candidates must be members of the Pharmaceutical Society (or Ph.C.s, etc.). The examination is held in London (or other centres during war-time) and Edinburgh in April of each year, the last day of entry being March 1. The period for an approved course of instruction extends over three months, or a part-time course over six months. Proof must be given of the training. Usually the lectures, followed by practical work, are given in the evening. The examination consists of a three-hours' written paper, one six-hour practical paper and a short oral. Original laboratory note-books must be available for inspection. The syllabus gives the details of the chemical examination of urine, blood and cerebrospinal fluid; milk analysis, gastric analysis, analysis of faeces; principles of basal

metabolism with metabolism experiments; renal efficiency tests; blood-sugar curves; acidosis and alkalosis; chemical tests of efficiency of liver and bile passages and pancreatic efficiency.

Diploma in Pharmaceutical Analysis.—The D.P.A. Pharm. Soc. is awarded after an approved course of training in pharmaceutical analysis. Candidates must be Members of the Pharmaceutical Society. The period for training must extend over one academic year, if full-time, or an equivalent period in an evening or part-time course. Satisfactory certification is required from a person authorised by Governing Authority. Also the Special Committee on Pharmaceutical Analysis has power to consider evidence of practical training covering the syllabus of not less than two years in case of a Ph.C. or three years in case of C. and D. entrant. Such evidence must be submitted before March 1. The examination consists of two three-hour written papers and four six-hour practical periods. Powers to examine orally are also given, and laboratory note-books must be produced. The syllabus includes: Qualitative inorganic and organic; chemical, physical and pharmacognostical tests of purity and standardisation; examination of dispensed medicaments, etc.; detection and determination of poisons in substances used in pharmacy and medicine. Standard works of reference are permitted. The places for training must be approved. The examination takes place in London in September (last day of entry June 1), and the fee is £5 5s. Application should be made to the Registrar, Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1.

University Examinations in Pharmacy.—LONDON.—In order to be admitted to a degree of B.Pharm., London, either as an internal or external student, candidates must (1) matriculate in one of the ways provided by the regulations, (2) pass the Intermediate examination in science, (3) internal students must have followed an approved course, whether day or evening, at one of the Colleges or Schools of the University. No such restrictions regarding methods or place of study are laid upon External students, but there are prescribed intervals between passing examinations. The fee for each examination is £6 6s. Application for copies of the regulations should be made to the Academic Registrar, the Senate House, University of London, W.C.1, or for an external student to the External Registrar.

The Intermediate examination of the University for external and internal students is set in two papers and a "practical" in each subject. Chemistry includes methods which lead to the discovery of the composition of common natural materials; determination of molecular weights, chemical laws and processes. In the practical: Quantitative, gravimetric and volumetric work. Note-books must be available for inspection by the examiners.

In Physics: The properties of solids, liquids and gases; principles of heat, sound and light, and the properties of magnetism and electricity.

Botany: Characteristics of angiosperms, gymnosperms, and specified natural orders. Pteridophyta, bryophyta, algae and fungi together with elementary physiology. In the practical will be included dissection and examination of parts of plants.

Zoology: The fundamental facts and laws, including specified types. General organisation of types, biological laws, structural phenomena, reproduction and diagnostic characteristics of lower forms of life. In the practical: Parts of the animals selected will require description, and some dissection is expected.

The B.Pharm. degree Final examination is the same for external as for internal students, covering pharmaceutics, pharmaceutical chemistry, pharmacognosy, and physiology, and is similar to the syllabus for the Pharmaceutical Chemist qualification, minus forensic pharmacy. The degree cannot be taken until three years after matriculation. The syllabus in the Ph.C. is drawn up by mutual agreement between University of London representatives and the Pharmaceutical Society.

As has already been pointed out, a degree granted by a University does not entitle to registration unless the Regulations of the Pharmaceutical Society are satisfied.

MANCHESTER.—In Manchester, for the B.Sc. degree in Pharmacy candidates must first have satisfied the requirements for entry upon a degree course and attained credit standard in mathematics and in mechanics in the School Certificate examination or its equivalent. They should then attend courses in chemistry, physics, botany and zoology, and present themselves for the Intermediate examination in these subjects at the end of the first year. Candidates who have offered mathematics in place of zoology attend a short three-months' course in zoology in the second year. Candidates before proceeding to the Final examination must present certificates of having attended satisfactorily during the second and third years approved courses in chemistry, botany, pharmacognosy, pharmaceutics and pharmaceutical chemistry, physiology, and short courses in bacteriology

and in methods of biological assay. They must also present satisfactory evidence that they can read scientific literature in German by passing a language test in this subject. They are required to pass the Final examination in the subjects of botany and pharmacognosy, chemistry and pharmaceutical chemistry, physiology, and pharmaceuticals. This degree is accepted by the Pharmaceutical Society in lieu of the Ph.C. Qualifying examination except in the subject of forensic pharmacy. Full particulars may be obtained from the Pharmaceutical Department, University of Manchester.

WALES.—The University of Wales confers the degree of B.Pharm. after the completion of a course of study divided into two parts, and the University has recently instituted a degree of M.Pharm. after a course of research, and its approval, and subsequent to graduation as a B.Pharm. or approved equivalent.

The first part, extending over one year, is pursued at any one of the four constituent colleges of the University. In certain circumstances, it may be pursued at the Welsh College of Pharmacy.

The second part, extending over two years, is pursued at the Welsh National School of Medicine, in association with the Welsh College of Pharmacy. The syllabus of subjects and other regulations bear a general similarity to those of other universities. The Welsh College of Pharmacy is a full-time department of the Technical College, Cardiff. Principal: J. C. Jones, B.Sc.

Courses may also be provided which will enable students, otherwise qualified to do so, to enter for examinations for degrees and diplomas of other examining authorities. The next session commences in October. Further particulars may be obtained from the Secretary, the Welsh National School of Medicine, 10 The Parade, Cardiff.

GLASGOW.—A degree of B.Sc. (Pharm.) is conferred by the University of Glasgow. Candidates must have matriculated and must, in the course of not less than four academical years, attend prescribed courses of instruction. Not less than three such years must be spent in attendance at the University and Royal Technical College. The syllabus is as follows: First year, Chemistry, biology and physics. Second, third, and fourth years, Advanced chemistry, physiology, pharmacy, pharmacognosy, bacteriology, physiological chemistry. The first examination is in chemistry, biology and physics. The subjects may be taken together or separately. The Final examination is taken in the subjects mentioned for remaining years of study. Further particulars may be obtained from the Registrar, University of Glasgow.

Teaching Institutions

SCHOOLS and institutions recognised by the Pharmaceutical Society for the preparation of students for the Intermediate examination and the Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations are to be found in the centres mentioned below:—

The Intermediate Examination, and the Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations.

ABERDEEN—Robert Gordon's Technical College.
BIRMINGHAM Central Technical College.
BRADFORD Technical College.
BRIGHTON Technical College.
CARDIFF Technical College.
DUNDEE Technical College.
EDINBURGH—Heriot-Watt College.
GLASGOW—Royal Technical College.
LEEDS University.
LEICESTER College of Technology.
LONDON—Chelsea Polytechnic, Manresa Road, Chelsea, S.W.3.
MANCHESTER University.
NOTTINGHAM University College.
PORTSMOUTH—The Municipal College.
SUNDERLAND Technical College.

The Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations.

LONDON—School of Pharmacy of the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, W.C.1.

The Intermediate examination and the Chemist and Druggist Qualifying examination.

BRISTOL—Merchant Venturers' Technical College.
LIVERPOOL School of Pharmacy, 2 Blackburne Place, Liverpool.
LONDON—London College of Pharmacy, 361 Clapham Road, S.W.
PLYMOUTH Technical College.

The Intermediate examination.

ANY UNIVERSITY COLLEGE IN THE BRITISH ISLES.
BARNSELY Mining and Technical College.
BLACKBURN Municipal Technical College.
BOURNEMOUTH Municipal College.
BURNLEY Municipal College.
CARLISLE Technical School.

CHELTENHAM Technical School.
COLWYN BAY Technical School.
COVENTRY Technical College.
CROYDON Polytechnic.
CRUMLIN Mining and Technical College.
DAGENHAM—South-East Essex Technical College.
DERBY Technical College.
DONCASTER Technical College.
FOLKESTONE Technical Institute.
GILLINGHAM—Medway Technical College.
HALIFAX Technical College.
HAVERFORDWEST—The Grammar School.
HUDDERSFIELD Technical College.
HULL Municipal Technical College.
KINGSTON-UPON-THAMES Technical College and School of Art.
LEEDS College of Technology.
LIVERPOOL—City of Liverpool Technical College.
LONDON—

Acton Technical Institute.
Northern Polytechnic Institute.
Norwood Technical Institute.
Regent Street Polytechnic.
Sir John Cass Technical Institute, Jewry Street, E.C.
South-West Essex Technical College, Walthamstow.
West Ham Municipal College.
Woolwich Polytechnic.

MIDDLESBROUGH—Constantine Technical College.
NEATH Mining and Technical Institute.
NEWARK-ON-TRENT—County Technical College.
NEWCASTLE-ON-TYNE—Rutherford Technical College.
NEWPORT (Mon.) Technical Institute.
NORTHAMPTON College of Technology.
NORWICH Technical Institute.
OSWESTRY Technical Institute.
PAISLEY Technical College.
PRESTON—Harris Institute.
ROTHERHAM College of Technology.
SALFORD Royal Technical College.
SHREWSBURY Technical College.
SOUTHPORT Technical College.
STOCKPORT College.
STOKE-ON-TRENT—North Staffordshire Technical College.
SWANSEA Technical College.
TORQUAY—South Devon Technical College.
WIGAN AND DISTRICT Mining and Technical College.
WOLVERHAMPTON AND STAFFORDSHIRE Technical College.
WREXHAM—Denbighshire Technical Institute.

Apothecaries' Assistants

LONDON.—Section 17 of the Apothecaries' Act, 1815, enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as assistant to an apothecary in compounding and dispensing medicines." The certificate granted entitles the holder to dispense only under supervision. The examination is held four times a year. Fee £6 6s. Particulars from the Registrar, Society of Apothecaries of London, Blackfriars Lane, London, E.C.4.

DUBLIN.—The Apothecaries' Hall of Ireland has a similar examination for certificate of assistant to an apothecary. Examination is held monthly, August and September excepted. Fee, £5 5s. Particulars from Registrar, 95 Merrion Square, Dublin.

Dispenserships

LONDON COUNTY COUNCIL (MENTAL INSTITUTIONS).—Rates of pay for pharmacists are: Large London County mental hospitals (men and women).—£270 a year, rising by £15 annually to £405. Caterham, Leavesden, St. Ebba's, and Tooting Bec hospitals and Darenth Park (men and women).—£250 a year, rising by £12 10s. annually to £350. The Manor, Epsom, and Maudsley hospital.—£225 a year, rising by £10 annually to £275 thence by £12 10s. annually to £300. Part-time pharmacists and assistant pharmacists (part-time), £130 a year; if allocated for duty at two institutions—equivalent to whole-time employment—£225 a year, rising by £10 annually to £275. Cost of living additions made to salaries under £350 (men) and £300 (women). While the war lasts, appointment and promotion are on a temporary basis and subject to review at any time and certainly after cessation of hostilities.

PRISON COMMISSION.—Candidates for appointment must be between twenty-four and thirty-five years old and hold the Pharmaceutical Society qualification as chemist and druggist or pharmaceutical chemist. Scale of pay begins at £200 per annum with quarters or an allowance in lieu, proceeding by annual increments to £325 per annum. In addition, a War Bonus is, at present, payable. For information apply to Secretary (Staff Branch), Prison Commission, Oriel College, Oxford.

EIRE

THE chief enactments governing practice of pharmacy in Eire are the Pharmacy Act (Ireland), 1875; the Pharmacy Act (Amendment Act), 1890; the Sale of Poisons (Ireland) Act, 1870; and the Dangerous Drugs Act, 1934. Particulars of these Acts, so far as the sale of poisons is concerned, are given in each annual issue of *The Chemist and Druggist Diary and Year Book*. The Act of 1875 set up a class of pharmaceutical chemists qualified to keep open shop for retailing, dispensing and compounding poisons and medical prescriptions. The Amending Act of 1890 brought into existence chemists and druggists and registered druggists on a statutory basis, and introduced a qualification for assistants to pharmaceutical chemists enabling them to transact the business of a shop during their employers' temporary absence. The Saorstát Eireann Juries Act, 1927, conferred on registered pharmaceutical chemists actually in business exemption from service on juries. The Irish Pharmacy Acts, 1875 and 1890, differ from the corresponding Acts in Great Britain in that mention is made of the subjects in which candidates or the Licentiate and the Registered Druggist qualification are to be examined—with the addition, in the earlier Act, of "such other subjects as may from time to time be prescribed by any regulations made in pursuance of this Act." The Registrar and Clerk to the Council of the Pharmaceutical Society of Ireland is Mr. James J. Kerr, P.C., M.P.S.I., 67 Lower Mount Street, Dublin.

Preliminary Examination.—This examination must be passed prior to the service in pharmacy required by the Regulations for the Licence examination, unless such service has been commenced before January 1, 1907. The Preliminary examination has been suspended for a period of ten years from January 1, 1935. The Matriculation examination of the National University of Ireland will be accepted in lieu of the Preliminary examination provided that: (1) A registration fee of £4 4s. is paid; (2) the certificate shows that the candidate has passed in Irish, English, Latin and mathematics; (3) such certificate shall be registered with the Society within sixty days of commencement of apprenticeship.

Pharmaceutical Licence Examination.—The qualifying examination for pharmaceutical chemist is that of Licentiate. Conditions to be fulfilled before entering upon Licence examination are:—

(a) After preliminary registration, serve four years as apprentice or assistant with, and in sole employment of, a pharmaceutical chemist, apothecary, or firm of legally qualified pharmaceutical chemists or apothecaries keeping open shop. Candidate must spend full business day with employer. Provision is made for service with more than one employer: after four years with a chemist and druggist or registered druggist in Eire, two years' further service with pharmaceutical chemist or apothecary suffices.

Service in the National Army under certain conditions will count as service for the purposes of this regulation.

(b) Attend courses in theoretical chemistry and botany and materia medica, and a course of practical chemistry (after lectures in theory) at approved institutions. These are listed below but some are approved for one or two subjects only:—

School of the Pharmaceutical Society of Ireland	Central Technical Institute, Waterford.
Municipal Technical School, Drogheda.	Municipal Technical Institute, Limerick.
City of Dublin Technical Schools.	Queen's University, Belfast.
University College, Galway.	Royal College of Surgeons in Ireland, Dublin.
School of Physic, Trinity College, Dublin.	Crawford Municipal Technical Institute, Cork.
Central Technical Institute, Clonmel.	Municipal Technical Schools, Dundalk.
City of Galway Technical Institute.	Crawford Municipal School, Cork.
University College, Dublin.	Trinity College, Dublin.

Candidates entering for Licence examination must have attended three months' course in practical pharmacy in the Society's Schools.

(c) Be twenty-one years of age.

(d) Lodge declaration and certificates of the foregoing with Registrar when applying for entry.

The examination commences on the Monday following the second Tuesday of January, April, July and October, at 10 a.m., and is held in the Pharmaceutical Society's House, Dublin. Candidates must give to the Registrar, fourteen clear days before the date of examination, notice of intention to attend, and this must be accompanied by receipt for payment of fee (£5 5s.) into Bank of Ireland to credit of the Society. The necessary forms should be procured well in advance. Re-examination fee, £5 5s.

The syllabus covers the following:—

BOTANY: Recognition of principal indigenous plants used in medicine, their natural orders; characters of their several parts.

MATERIA MEDICA: Recognition of B.P. drugs; their characters, active principles, sources, official preparations and adulterations.

CHEMISTRY: Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of processes by which they are obtained, qualitative (including B.P. tests) and volumetric analysis; practical examination in these subjects. (The Council recommends "Text Book of Pharmaceutical Chemistry" (Bentley and Driver).)

PRACTICAL PHARMACY: Translation of Latin prescriptions; detection of dangerous doses; and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations; intimate knowledge of Sale of Poisons (Ireland) Act, 1870; Arsenic Act, 1851; Poisons and Pharmacy Act, 1908; and D.D.A. Regulations.

Fee of £10 10s. for registration is due on passing the examination.

Assistants' Examination.—The examination instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist is held quarterly on the Monday following the examination for the Pharmaceutical Licence, thus permitting unsuccessful candidates at the latter examination to enter for the assistants' examination on payment of a fee of £2 2s. Successful candidates pay a registration fee of £3 3s.; re-examination fee, £2 2s. Conditions are similar to those of the Licence examination, but candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are:—

PRESCRIPTIONS: To read autograph prescriptions, translate them into English, render correct translation of directions for use, and detect unusual doses.

PRACTICAL DISPENSING: To weigh, measure and compound medicines, write directions in suitable language, finish and properly direct each package.

MATERIA MEDICA AND QUALITY OF SPECIMENS: To recognise Pharmacopœia chemicals in frequent demand, and specimens of roots, barks, leaves, fruits, resins and gums in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

PHARMACY: To recognise Pharmacopœia preparations not of a definite chemical nature, such as extracts, tinctures and powders, and give proportions of more active ingredients.

Candidates will also be examined in the Sale of Poisons (Ireland) Act; Arsenic Act, 1851; Poisons and Pharmacy Act, 1908; and D.D.A. regulations.

Registered Druggist Examination.—The subjects of this examination are prescribed by the Pharmacy Act (Ireland) (Amendment Act), 1890, and are:—

English orthography and composition; arithmetic and weights and measures of British Pharmacopœia; the appearance and properties of various drugs and chemicals in general use; Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served for not less than four years as an assistant or apprentice to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary, keeping open shop, and is held in Dublin on the second Tuesday of January, April, July and October. Application for admission, accompanied by the necessary declarations of service and receipt for £4 4s. placed to credit of the Society at Bank of Ireland, must be made to Registrar at least fourteen days before date of examination. Re-examination fee, £2 2s.

Pharmaceutical Society's Schools

Director: Chemistry school, Professor H. Norminton, M.Sc.; botany and materia medica school, Mr. A. F. Collins, B.Sc., M.P.S.I., H. Dip.; Pharmacy class (Miss K. Fogarty, M.P.S.I.), Mondays, Wednesdays and Fridays from 7.30 to 9.30 p.m. Student must attend at least 75 per cent. of lectures to obtain certificate. Two sessions commence October 1 and January 1. Fees: £4 4s. for students of Society's schools; £8 8s. for students of other schools. Theoretical and practical chemistry. *Night Class*, October 1 to May 31, Mondays, Wednesdays and Fridays, from 8–10 p.m. Fee, £8 8s. *Day Class*, March 1 to June 30, Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays, 3.30 to 5.30 p.m. Fee, £8 8s. Botany and materia medica, two sessions, October 1 to January 31 and February 1 to May 31, Tuesdays and Thursdays, 7.45 to 9.45 p.m. Fee, £3 3s.

NORTHERN IRELAND

Preliminary Examination.—Pharmacy in Northern Ireland differs from that in Great Britain and Eire in that registered proprietors of retail businesses will all, eventually, be pharmaceutical chemists, former registered druggists having either become pharmaceutical chemists since 1925 or been registered under a provision that will not be continued permanently. The Pharmacy and Poisons Act (Northern Ireland), 1925, under which this change operates, provided a modified examination for registered druggists who wished to qualify as pharmaceutical chemists; and many have thus secured the higher qualification. The Queen's University of Belfast offers the degree of B.Sc. in Pharmaceutics, holding of which exempts from examination by the Pharmaceutical Society in pharmacognosy and chemistry, Part II, and from the written examination in pharmacy. Full particulars may be obtained from the Registrar of the University or Secretary of the Pharmaceutical Society, 73 University Street, Belfast.

Before a student can become apprenticed he must pass a preliminary examination in English, mathematics, and three other subjects (one of which must be a language from the following list: Latin, Greek, French, German, Spanish, Italian, Irish), modern history, geography, botany, chemistry, physics or mechanics. The five subjects must have been passed at one, or not more than two, of the following examinations: (a) Matriculation examination, Queen's University of Belfast; (b) any examination accepted by that University as equivalent to Matriculation; (c) Pharmaceutical Preliminary examination of Queen's University, Belfast. Candidates in the first instance should apply to the Secretary, Pharmaceutical Society of Northern Ireland, 73 University Street, Belfast, at least one month before last day of entry for Matriculation. They will be examined on papers set for the Queen's University Matriculation examination, and must reach the standard set for the pharmaceutical Preliminary, which is below Matriculation standard. An application for the Preliminary certificate of apprentice to a pharmaceutical chemist must be accompanied by £3 3s.; the student then registers officially as an apprentice at the Ministry of Home Affairs (fee 5s.). A four-years' apprenticeship to a pharmaceutical chemist, or four with a registered druggist and two with a pharmaceutical chemist, then begins.

Pharmaceutical Chemist Examination.—Having satisfied the requirements as to apprenticeship and attendance at approved courses of instruction the candidate must pass Part I, the subjects of which are botany, chemistry Part I, physics and business methods (or pass the Intermediate of the Queen's University, Belfast):—

BOTANY: Elements of plant morphology and anatomy, physiology, classification. Practical examination of plants and preparation of sections of microscope.

CHEMISTRY, PART I: Elementary knowledge of chemical action, laws, valency; non-metals, metals, carbon, methane, ethylene and acetylene; methods of determining carbon, hydrogen, oxygen and nitrogen in organic compounds. Solve simple problems in weight and volume. *Practical:* Preparation of inorganic substances; qualitative and quantitative (volumetric) analysis.

PHYSICS: Elementary knowledge of mass, energy and work, solids, liquids, gases; temperature; propagation of light, magnetism and electricity. *Practical:* Simple experiments on the above.

BUSINESS METHODS: Book-keeping, including business books required in a pharmacy; double entry; balance sheets; commercial law relating to master and servant, leases, agreements and contracts. Working knowledge of matters likely to arise in pharmaceutical practice relating to licences, insurance, income tax, partnership and company trading, elementary principles of advertising and salesmanship; modern methods of window display; shopcraft, including arrangement of shop, windows, heat, ventilation, counters, wall and counter cases and general layout.

Having passed Part I, candidate supplies evidence of having attained age of twenty-one, and of attendance at approved courses in subjects of Part II. Alternatively, he may submit to Board of Examiners evidence of passing in all subjects of Final Part I of B.Sc. examination in pharmaceutics of Queen's University, Belfast, and present himself for oral and practical examinations in pharmacy, practical pharmacy, Latin and prescription-reading. A candidate who fails in any of these subjects must present himself in all at another examination. The subjects are:—

PHARMACOGNOSY: Recognition of B.P. or B.P.C. drugs, their sources, characters, active principles, varieties, natural orders, knowledge of B.P. tests.

PHARMACY: Knowledge of operations requiring heat, disintegration of solid substances, filtration, expression, solution, art of dispensing, manufacture of galenicals.

LATIN AND PRESCRIPTION-READING: Translation of Latin prescriptions; detection of errors; knowledge of posology; percentages.

PRACTICAL PHARMACY: Performance of B.P. operations in making galenicals. Compounding and dispensing medicines.

FORENSIC PHARMACY: Knowledge of poisons in fourth schedule to Pharmacy and Poisons Act (Northern Ireland), 1925, and conditions relating to keeping, selling and dispensing. Dangerous Drugs Acts and Regulations.

CHEMISTRY, PART II: General knowledge of B.P. and common alkyl and aryl compounds, adulterations in B.P. inorganic and organic compounds and methods of determining purity. *Practical:* Identification of specified organic compounds; detection of adulterants of B.P. substances; volumetric and nitrometric determinations; methods of preparing more important inorganic and specified organic compounds; alkaloidal determinations.

The examinations are held in June and December; fees, £4 4s. for Part I; £8 8s. for Part II; for re-examination, half stated fees.

SCHOLARSHIPS AND PRIZES

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Pharmaceutical Chemist Qualifying examination, and were members or student-associates of the Society at the time of passing. The written examination is in *materia medica*, embracing pharmaceutical chemistry, pharmaceutics, pharmacognosy and physiology. The first prize is the Pereira silver medal and books; second, the Society's silver medal and books; and third, the Society's bronze medal and books. The Society also has in its gift:—

The Jacob Bell Scholarship.—A scholarship of the annual value of about £70, offered annually by the Society. The award also includes a gift of books. The scholarship is tenable for one or two years in respect of various courses of study.

The Burroughs Scholarship has been combined with *The Redwood Scholarship* and *The Ransom Fellowship* for affording pharmaceutical chemists or university graduates in pharmacy opportunities of working in the research laboratories of the Society. Each scholarship is tenable for two years, and each holder of a scholarship receives apparatus and £100 per annum. The annual sequence of the scholarship is as follows: Burroughs; Ransom; Redwood; Ransom. Particulars may be obtained from the Secretary of the Society.

PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and silver medal to pharmaceutical chemists who have during the year passed the Licence examination on the first attempt and obtained the following standard of marks: For gold medal, not less than 240 out of 300 and 65 in each of the three subjects; for silver medal, 230 out of 300 and 60 in each subject. Particulars from Registrar.

GENATOSAN SCHOLARSHIPS.—Three scholarships are offered by Genatosan, Ltd. These are tenable at any recognised pharmaceutical college, and are of a value of £50, £25, and £10, respectively. All apprentice-students of pharmacy registered with the Pharmaceutical Society of Great Britain who are serving their apprenticeship in this country (with the exception of Northern Ireland and the Isle of Man) are eligible to compete. Between October and April thirteen lectures will be sent out to each competitor. The final examination will take place in May or June 1942. The subject-matter of the lectures will embrace: (1) Elementary physiology, (2) Elementary bacteriology, (3) Chemistry, *materia medica*, and physical construction of pharmaceutical preparations in general and will apply more particularly to the products of the House of Genatosan, (4) The psychology of selling. The closing date for entrance for the 1941-42 Session is October 4, 1941.

THE FAIRCHILD SCHOLARSHIP, which was founded in 1904 by Fairchild & Brothers & Foster, is suspended during the war. The object of the scholarship is to encourage study during apprenticeship. The examination is designed not as a test for completed studies, but to see how far the student has used his time and powers of observation during apprenticeship so as to fit himself or herself to appreciate fully the subsequent course of study. The value is £60, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examination takes place during June, and entries should be made on, or before, June 1. On the day the examination is held candidates must be not more than twenty-two years of age, and all competitors must be registered students or apprentices of pharmacy in their respective countries. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Chemistry and physics, botany, practical pharmacy and prescription-reading, business knowledge. The trustees are Mr. T. Marns, London; Mr. T. M. Ridley, Carlisle; Mr. H. Brindle, Manchester; Mr. William Kirkby, Bristol. Full particulars can be obtained from the Secretary to the Trustees, Mr. Herbert Skinner, Ph.C., Albert Chambers, 65 Holborn Viaduct, London, E.C.1.

MEDICINE

THE method of entry to the medical profession is described below under the heading "Registration as Medical Students."

The General Medical Council is the governing body for the purposes of examination, registration and discipline in the United Kingdom. The Council issues a "Memorandum on Admission of Students to Schools of Medicine and Schools of Dentistry." Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British University, together with evidence of having passed an approved pre-registration examination in elementary chemistry and elementary physics. There are two types of medical qualification: degrees bestowed by the universities and diplomas given by such bodies as the Royal Colleges of Physicians and Surgeons.

Preliminary Examinations.—The General Medical Council issues a list of examining bodies of which the examinations in general education fulfil the conditions governing admission as a medical student. Any preliminary examination must include: (1) English; (2) elementary mathematics; (3) a language other than English; (4) an additional subject or subjects as required by the regulations of the examination selected. A Joint Matriculation Board (Secretary, 15 Oxford Road, Manchester, 13) governs the Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March, July, September and December of every year a Professional Preliminary examination for certificates recognised by the General Medical Council and other bodies, in Birmingham, Blackburn, Glasgow, Leeds, Liverpool, London, Manchester and Swansea. The examination may also be held at other specified centres if sufficient entries are received. A similar examination is held by the Educational Institute of Scotland, 46 and 47 Moray Place, Edinburgh, 3, in February, May, August and November. The examination centres are Edinburgh, Glasgow, Liverpool, London and Dublin. The compulsory and optional subjects differ to some extent at the various universities and other qualifying bodies, and the candidate for a degree must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held will be accepted.

Registration as Medical Students.—The following is a summary of the necessary procedure:—

- (1) Pass an approved examination in general education.
- (2) Pass an examination conducted or recognised by a licensing body in chemistry and physics.
- (3) Having attained age of eighteen, enter name at medical school recognised by a licensing body.
- (4) Obtain registration as medical student.
- (5) Study, for a minimum of five years, certain prescribed subjects.
- (6) Pass intermediate examinations; at end of fifth year pass qualifying examination entitling to registration.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and the principle is extended to graduates in arts or science at approved universities. No general exemption of this kind is given to registered pharmacists except in training in practical pharmacy. The Preliminary examination must have been of the standard given in the regulations, but colleges and universities consider applications for exemption from any part of medical examinations when subjects such as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to studies required, and schools of medicine arrange courses to conform with such requirements.

London Society of Apothecaries' Diploma.—The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery and midwifery. The minimum period of medical study extends over five years (fifty-seven months). Members of the Pharmaceutical Society of Great Britain are required to pass a preliminary examination in general education in accordance with the registration requirements of the General Medical Council. They are exempt from chemistry and physics in the pre-medical examination, but are required to pass in biology. In all other respects they are required to complete the full curriculum and examinations. After passing in anatomy and physiology, candidates proceed to study for the Final examination, during which period they may take materia medica and pharmacology. The Final examination is held monthly except in September, and comprises: (a) Principles and practice of surgery, including surgical pathology, surgical anatomy, operative manipulation, instruments and appliances, (b) Principles and practice of medicine, including therapeutics, pharmacology, pathology, bacteriology and morbid histology, forensic medicine, hygiene, mental diseases and the theory and

practice of vaccination. (c) Midwifery, including diseases of newborn children and the use of obstetric instruments. These three sections may be taken together or separately. The fees for the Primary and Final examinations are £26 5s., which may be paid in instalments. Application may be made to the Registrar, Society of Apothecaries of London, Blackfriars Lane, E.C.4.

DUBLIN APOTHECARIES' DIPLOMA.—The Apothecaries Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the 1st and 2nd Professional, and Final examination of the Hall. This diploma entitles a licentiate to register as a medical practitioner and compete for medical appointments. Particulars from the Registrar, 95 Merrion Square, Dublin.

Medical and Surgical Diplomas.—M.R.C.S.ENG. AND L.R.C.P. LOND.—The examining board of the Royal College of Physicians of London and Royal College of Surgeons of England (the "Conjoint Board") grants a joint diploma for registration as general medical practitioner. There are two professional examinations in addition to the Preliminary and Pre-medical during a five years' curriculum subsequent to registration as medical student.

First Professional examination:—Part I, (a) Anatomy, including histology and embryology; (b) physiology, including biochemistry. Part II, Pharmacology and materia medica. Candidates must take (a) and (b) of Part I together until they have passed in one or both subjects. Part II may be passed at any time before the candidate enters for the Final. Before admission to the examination candidates must give evidence of attendance at specified courses of instruction.

Final Professional examination: Part I, Pathology (including morbid anatomy, morbid histology and clinical pathology) and bacteriology. Part II, Medicine, including medical anatomy, forensic medicine and public health. Part III, Surgery, including surgical anatomy and the use of surgical appliances. Part IV, Midwifery and gynaecology. Candidates must produce evidence of having completed specified courses of study.

Examination synopses can be obtained from Mr. H. H. Rew, Secretary of the Examining Board, 8-11 Queen Square, London, W.C.1.

LONDON.—Normal course of study extends over five-and-a-half years, with three examinations. Several studentships and research grants are available. Internal and external students should apply to Academic Registrar, University of London, c/o Richmond College, Surrey.

DENTISTRY

DENTAL students are registered by their respective schools or licensing bodies. The Dental Board of the United Kingdom, which is entrusted with carrying out the General Medical Council's requirements as to dentists, gives substantial grants to students in approved cases.

Training.—Candidates for registration as dental students must be not less than eighteen years of age, and have passed a recognised Preliminary examination (see under "Medicine") and an additional examination. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry. No portion of practical instruction taken prior to date of registration may be reckoned as a portion of the four years. Instruction in dental mechanics is recommended to be taken at a recognised dental hospital or school. If any part is taken with a registered dentist, the time required to be devoted to it is at least twice that required at a dental school.

First examination, held three times a year: Properties of dental materials. **Second examination,** held three times a year: (1) General anatomy and physiology, (2) special anatomy and physiology, (3) practical dental mechanics. Candidates may enter the three parts together or separately on production of required certificates of study.

Final examination: (1) General surgery, medicine, pathology and bacteriology; (2) dental surgery and pathology and practical dental surgery. Candidates must have been engaged in recognised professional study for four years after passing Pre-medical examination, and have attended certain courses of instruction.

Inquiries should be addressed to Director of Examinations, Dental Board, Examination Hall, Queen Square, London, W.C.1.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—Particulars from Secretary of Faculty, 242 St. Vincent Street.

LONDON.—Degree of B.D.S. is conferred after matriculation and three subsequent examinations, the second taken in two parts. Curriculum extends over five years. Particulars from Academic Registrar, University of London, c/o Richmond College, Surrey.

SCIENCE

Diplomas in Chemistry.—The Institute of Chemistry of Great Britain and Ireland conducts examinations for the Associateship of the Institute (A.I.C.). A certificate of having passed the examination of the Fellowship in Branch E (*see below*) is practically a necessity to obtain an appointment as a public analyst, but Associates can today secure admission to the Fellowship examination in this Branch only if they can produce evidence of having had three years' actual experience in food and drug work. The regulations for admission of students, associates and fellows are obtainable from the Registrar of the Institute, 30 Russell Square, London, W.C.1.

STUDENTSHIP.—Candidates register at the Institute as students. They must be British subjects, not less than sixteen years of age, have passed an approved preliminary examination and be recommended by a teacher of chemistry at a recognised institution or Fellow of the Institute. Annual registration, 10s.

ASSOCIATESHIP.—The examination for Associateship (A.I.C.) occupies six days and consists of general theoretical chemistry (three papers) and practical chemistry. Fee, £5 5s. Rather more physics and mathematics are required than are normally included in the pharmaceutical curriculum, and further advanced chemistry is necessary. The examination is open to candidates who have (i) completed a four years' day course of study in prescribed subjects at an approved institution; (ii) in lieu of first year of above taken two years' full-time study at a secondary school recognised by Board of Education or had two years' experience in the laboratory of a Fellow of the Institute; (iii) in lieu of fourth year of above had one year's satisfactory experience under a Fellow or in an approved laboratory or works; or (iv) obtained a degree that includes chemistry in the final examination, and undergone a further year's training in chemistry at a recognised institution or had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works. Applications are also considered from candidates over twenty-five who have been at least eight years in practice and candidates over thirty who have been engaged in the study and practice of chemistry for at least twelve years and attained responsible positions yet do not comply with the above requirements.

The following is a synopsis of the Associateship examination:—

(a) *General theoretical chemistry.*—Thorough acquaintance with fundamental laws and theories of chemistry; properties and methods of preparing elements and their compounds, both inorganic and organic; applications of chemistry in the arts and industries. Three papers are set, any of which may contain questions in inorganic, organic and physical chemistry.

(b) *Practical chemistry.*—Exercises in qualitative and quantitative (gravimetric and volumetric) analysis, including analysis of alloys, ores and minerals and determination of substances present in minute quantities—as impurities or otherwise—in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including recognition and determination of elements and of typical groups and radicles; identification of organic compounds; gas analysis; determination of physical constants; use of physical instruments employed by chemists.

Candidates are required to show ability to translate technical literature from French and German into English, with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates having certain university degrees with first- or second-class honours in chemistry, or other diplomas recognised by the Council, subject to certain limitations as to training.

FELLOWSHIP.—Admission to Fellowship of the Institute is by examination and open to associates of three years' standing and who are not less than twenty-four years of age, though exemption from examination is granted to associates in certain circumstances.

Candidates may enter for Branch (A) inorganic; (B) physical; (C) organic chemistry; (D) biochemistry; (E) chemistry (including microscopy) of food and drugs and water; (F) agricultural; (G) industrial chemistry; or (H) general analytical chemistry. Fees: for associates, £5 5s.; others, £10 10s.

SCHOLARSHIPS.—Salters' Institute awards grants in aid to employees over seventeen years old in chemical works in or near London who desire to extend their education in chemical industry; fellowships in research are offered annually. Applications should be made early in May to the Director, Salters' Institute of Industrial Chemistry, Salters' Gardens, Church Road, Watford.

Science Degrees.—LONDON.—The regulations for a degree in science of London University require student to pass three examinations: (1) MATRICULATION, (2) INTERMEDIATE IN SCIENCE, and (3)

FINAL. Regulations are published for (a) internal students who register as such and follow approved courses of instruction, and (b) external students who are examined without complying with a curriculum.

For particulars of MATRICULATION, Special University Entrance examination, apply to Matriculation Secretary, c/o Richmond College, Surrey; of External examinations to External Registrar, University of London, c/o Richmond College, Surrey. Regulations for Internal students are to be obtained from the Academic Registrar. University statutes require all External students to register.

INTERMEDIATE examination in science commences on the first Monday in July. An additional Intermediate examination is held in London, in the more usual subjects only, commencing on the fourth Monday of November. A candidate must have passed matriculation examination not later than preceding January or June, respectively, or otherwise have fulfilled conditions of exemption, and must pass in any four subjects from the following: (1) Pure mathematics; (2) applied mathematics; (3) physics; (4) chemistry; (5) geology; (6) botany; (7) zoology; (8) general principles of biology; (9) general physiology; (10) military studies; (11) geography; (12) psychology. At least one of the subjects selected must be taken from among the first three. Fee, £6 6s.

FINAL examination for B.Sc. takes place once a year, commencing on third Monday prior to first Monday in July. B.Sc. degree is obtainable by passing B.Sc. (general) examination in three subjects, or B.Sc. (special) examination in one principal and one subsidiary subject. Successful candidates are awarded First-class Honours, Second-class Honours or Pass Degree. An additional general examination for external students only is also held in the more ordinary subjects, commencing on the first Monday in November. Candidates must have passed the Intermediate about a year previously, and Matriculation approximately three years previously. Fees, £7 7s. for special, and £6 6s. for general examinations. There are fifteen prescribed subjects to select from. The degrees Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) are also open by examination. D.Sc. degree is awarded for published work.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (*cum curriculo*), usually three years after matriculation, with examination at the end of each session.

OPTICS

AMONG the bodies which conduct examinations and issue diplomas in optics are the Worshipful Company of Spectacle Makers, the British Optical Association, the National Association of Opticians, the Scottish Association of Opticians, the Northampton Polytechnic, and the Institute of Chemists Opticians. Matriculation, or equivalent standard of preliminary education, is required as an entrance examination in some cases. Scholarships in optics are available at the Northampton Polytechnic Institute and to students about to prepare at certain centres for the examinations of the British Optical Association.

THE WORSHIPFUL COMPANY OF SPECTACLE MAKERS holds its Fellowship examination twice yearly in May and November, and the Honours examination in May each year. The fees are as follows: Fellowship: Part I, £4 4s.; Part II, £4 4s.; Part III, £2 12s. 6d.; Part IV, £1 11s. 6d.; Honours, £5 5s. Full particulars of the examinations may be obtained from the temporary offices of the Company at 10 Summit Way, Southgate, London, N.14.

THE BRITISH OPTICAL ASSOCIATION, 65 Brook Street, London, W.1, conducts a Preliminary, a Dispensing, a Fellowship, an Honours, and an Orthoptics examination, the first-named being in general education and the others in optics. No candidate is accepted for the Fellowship examination who has not previously passed the Preliminary or an examination of matriculation standard. Evidence must be submitted of training in various branches of optics and also of business training with an approved optician or optical firm. The examination fees are: Preliminary, £2 12s. 6d.; Dispensing, £2 2s.; Fellowship, £10 10s.; and Honours, £5 5s.

THE NATIONAL ASSOCIATION OF OPTICIANS holds its examinations thrice yearly at various centres. Candidates are required to produce evidence of training in optical practice and sight testing and must submit evidence of preliminary education of matriculation standard, with subsequent attendance at an approved course. The fees are £3 3s. for the First and £5 5s. for the Final examination. A copy of the syllabus may be obtained from the Secretary, 130 Princes Road, Liverpool, 8.

THE SCOTTISH ASSOCIATION OF OPTICIANS holds its examination at various centres in Scotland. The syllabus is obtainable from the Secretary, 1014 Argyle Street, Glasgow.

NORTHAMPTON POLYTECHNIC, St. John Street, London, E.C.1, conduct full-time and part-time courses which cover the requirements of the above-mentioned examinations and prospectuses and full particulars may be obtained on application from the secretary.

THE SCHOOL OF OPTICS, LTD., temporary address, c/o H. O. Wood, Magdalenstone, Essex, prepares students for all the recognised qualifying examinations. The complete full-time course ranges from six to twelve months or longer, according to individual requirements. The part-time combined course may be commenced at any time. The school is recognised by the British Optical Association for mechanical, technical and clinical training and clinical experience.

BRITISH OPTICAL INSTITUTE, LTD., 3 High Street, Epsom, has suspended practical classes and clinical work "for the duration," but correspondence instruction is continued as usual.

MR. C. A. Scurr, F.M.S.C., F.B.O.A., chemist and druggist, 10 High Street, Barnet, prepares candidates for the foregoing examinations, the courses being mainly by correspondence. The practical work is usually carried during a visit to London a short time prior to the examination.

MR. C. V. Bolton, F.M.S.C., 1 Lord Street, Leigh, Lancs, conducts full-time, part-time and correspondence courses. Students may commence at any time as the course is arranged according to individual needs. All work is under the personal supervision of the principal. Full details may be obtained on request.

Other centres where training for the above examinations can be obtained are: Central Technical College, Suffolk Street, Birmingham; Cardiff Technical College; Liverpool City Technical College; Manchester Municipal College of Technology, North Staffordshire Technical College, Stoke-on-Trent; Rutherford Technical College, Newcastle-upon-Tyne; West Ham Municipal College, London, E.15; Wansley Municipal Technical College; The College of Optics, 133 Longgate, Glasgow, C.1; Glasgow School of Optics, 300 West Princes Street, Glasgow, C.4; and the Heriot-Watt College, Edinburgh, and the Refraction Hospitals in London, Leeds and Glasgow.

VETERINARY SURGERY

To practise as a veterinary surgeon it is necessary to possess the membership diploma of the Royal College of Veterinary Surgeons (10 Red Lion Square, London, W.C.1). This College is an examining body, so that professional education must be obtained at one of the affiliated veterinary colleges. Examinations are held simultaneously in London, Liverpool, Edinburgh, Glasgow and Dublin in July and December each year. The examination fee payable to the Royal College of Veterinary Surgeons is £6 6s. for each examination. Candidates referred in one subject pay a fee of £4 4s. for each re-examination. A student who desires to become a veterinary surgeon must attend college for at least five sessions of thirty weeks each, and pass five professional examinations. Prior to admission as a student he must pass an examination in general education entitling him to admission to a university.

The following veterinary colleges are affiliated to the Royal College of Veterinary Surgeons: Royal Veterinary College and Hospital, Great College Street, Camden Town, N.W.1; Veterinary College of Ireland, Shelbourne Road, Ballsbridge, Dublin; Royal (Dick) Veterinary College, Summerhall, Edinburgh; Glasgow Veterinary College, Buccleuch Street, Garnethill, Glasgow. The University Veterinary School, Liverpool, gives a university training or the M.R.C.V.S. and also for a veterinary degree B.V.Sc.

CHIROPODY

A MEASURE of recognition has been accorded chiropodists by their admission to the National Register of Medical Auxiliary Services. Among the qualifications recognised as registrable are the Incorporated Society of Chiropodists and the British Association of Chiropodists, and other examining bodies are being investigated with a view to their recognition and admission to the Chiropody Group Council. Systematic training can be obtained from the institutions mentioned below.

Under the auspices of the **INCORPORATED SOCIETY OF CHIROPODISTS**, 21 Cavendish Square, London, W.1, which acts as an examining body, two-year courses are organised at the **EDINBURGH SCHOOL OF CHIROPODY**, GLASGOW and **WEST OF SCOTLAND COLLEGE OF CHIROPODY**, LONDON FOOT HOSPITAL SCHOOL OF CHIROPODY (33 Fitzroy Square, W.1), and **MANCHESTER SCHOOL OF CHIROPODY**. Students successful in the examinations are eligible for membership of the Society (M.I.S.Ch.) as well as registration as Medical Auxiliaries, the Society being recognised by the Board of Registration of Medical Auxiliaries.

THE CHELSEA SCHOOL OF CHIROPODY (Chelsea Polytechnic) two-year day courses provide a complete preparation for the Chelsea Polytechnic Certificate in chiropody, which qualifies for membership of the Chelsea Chiropodists' Association (M.C.Ch.A.) and the National Register of Medical Auxiliary Services. Facilities for practical experience in public hospitals, institutions and school clinics. The School is subject to periodic inspection by the Board of Education and the London County Council. Fees, £21 per annum.

THE BRITISH ASSOCIATION OF CHIROPODISTS (Westminster Foot Hospital), 80 Rochester Row, London, S.W.1, together with its qualifications, is recognised by the Board of Registration of Medical Auxiliaries. Two-year courses; fees, £31 10s. per annum.

BOOKS FOR STUDENTS

THE following list contains some of the popular text-books for pharmaceutical students:—

BIOLOGY

- "Biology for Students of Pharmacy," Moore (Arnold), 15s.
- "Biology for Pharmaceutical Students," Maugham and Hockley (Baillière), 15s.
- "Practical Biology," C. J. Wallis (Heinemann), 7s. 6d.
- "Outlines of Biology," Mitchell (Methuen), 7s. 6d.

BOTANY

- "Pharmaceutical Botany" (C. & D.), 5s.
- "Text-Book of Botany for Medical and Pharmaceutical Students" and "Practical Botany," James Small (Churchill), 21s. and 10s. 6d. respectively.
- "Intermediate Botany," L. J. Brimble (Macmillan), 8s. 6d.
- "Recent Advances in Botany," Barton-Wright (Churchill), 12s. 6d.

CHEMISTRY

- "Text-Book of Inorganic Chemistry," Senter (Methuen), 8s.
- "A Student's Manual of Organic Chemistry," Thorpe and Whiteley (Longmans), 10s. 6d.
- "Volumetric Analysis," Hampshire (Churchill), 8s. 6d.
- "Sutton's Volumetric Analysis," Mitchell (Churchill), 35s.
- "Organic Chemistry for Medical, Intermediate Science and Pharmaceutical Students," Macbeth (Longmans), 8s.
- "Quantitative Chemical Analysis," Clowes and Coleman, revised by Stockdale and Dexter (Churchill), 18s.
- "Outlines of Organic Chemistry," Holmyard (Arnold), 8s.
- "Modern Inorganic Chemistry," Mellor, revised by Parkes (Longmans), 14s.
- "Theoretical Pharmaceutical Chemistry," C. G. Lyons (Pitman), 15s.
- "Practical Pharmaceutical Chemistry," F. N. Appleyard and C. G. Lyons (Pitman), 6s. 6d.
- "Organic Chemistry," Lowry and Austin (Macmillan), 3s.
- "Introduction to Practical Organic Chemistry," Waters (Arnold), 3s. 6d.

FORENSIC PHARMACY

- The Chemist and Druggist Poisons Guide (C. & D.), 4s. 6d.
- "Poisons Law," H. N. Linstead (Pharmaceutical Press), 5s.

PHARMACEUTICS

- "British Pharmacopoeia," 1932 (Constable), 21s.
- "Addendum 1936 to the British Pharmacopoeia" (Constable), 5s.; Second Addendum, 2s.; Third Addendum, 3s. 6d.
- "British Pharmaceutical Codex," 1934 (Pharmaceutical Society), 35s.
- "The Science and Practice of Pharmacy," R. R. Bennett and T. T. Cocking (Churchill), 21s. (2 vol.).
- "Art of Dispensing" (C. & D.), 10s. 6d.
- "A Handbook to Pharmacy," W. Kirkby (C. & D.), 5s.
- "A Text-Book of Pharmaceutics," Bentley (Baillière), 16s.
- "Latin for Pharmaceutical Students," J. W. Cooper and A. C. McLaren (Pitman), 7s. 6d.
- "Dictionary of Synonyms" (C. & D.), 5s.
- "Tutorial Pharmacy," J. W. Cooper (Pitman), 17s. 6d.
- "Dictionary of Medical Terms" (C. & D.), 8s. 6d.

PHARMACOGNOSY

- "Text-Book of Pharmacognosy," Greenish (Churchill), 25s.
- "Practical Pharmacognosy," Wallis (Churchill), 12s. 6d.
- "Text-Book of Pharmacognosy," Trease (Baillière), 21s.
- "Text-Book of Pharmacognosy," T. E. Denston (Pitman), 20s.
- "Drug Atlas for Students of Pharmacy and Medicine," Scarnell Lean (Longmans), 3s.

PHYSICS

- "Manual of Physics," J. A. Crowther (Oxford University Press), 14s.
- "A Class Book of Physics," R. Gregory and H. E. Hadley (Macmillan), 6s. 6d.
- "Practical Physics for Inter. B.Sc. Students," H. M. Browning and L. Starbuck (Blackie), 3s. 6d.

PHYSIOLOGY

- "Manual of Human Physiology," Sir Leonard Hill (Arnold), 7s.
- "Aids to Physiology," H. Dryer (Baillière), 3s. 6d.
- "Bainbridge and Menzies' Essentials of Physiology," H. Hartridge (Longmans), 14s.
- "Human Physiology," Winton and Bayliss (Churchill), 16s.

CULTIVATION AND DRYING OF DRUGS

THE second part of an article on war-time drug supplies and Empire production by Dr. M. Ashby, of the Imperial Institute ("Bulletin of the Imperial Institute," xxxix, II, 106) includes information on the cultivation and drying of the undermentioned drugs. An abstract of the first part of the article appeared in the *C. & D.*, June 28.

CALUMBA.—The fleshy roots, which are produced in clusters, are dug up in the dry season, the older parts and any pieces of rhizome being rejected. The roots are cut into oblique or transverse slices and dried without washing off the adhering soil; in this form the drug is shipped as "natural calumba," usually packed in 1-cwt. bags. Washing, unless carefully carried out, results in a loss of active principle, and importers therefore prefer to wash the material themselves on arrival in this country. This gives "washed calumba," which is the official drug.

CARAWAY.—The plant is accommodating in its soil requirements, but is said to give the highest yields on medium-light soils that have been thoroughly worked and are rich in organic matter. As caraway is a biennial plant, it is generally grown in conjunction with some annual crop that can be harvested to give a return at the end of the first year. The choice of the annual crop is limited to low-growing plants such as dwarf peas, mustard or field beans, which do not overshadow the young caraway. Sowing takes place in the early spring in rows about 12 in. to 16 in. apart. It may be carried out either in one operation, with the seeds of the two crops thoroughly mixed beforehand, or else as two separate sowings. Frequent hoeing to keep down all weeds and maintain an open soil is most important, especially during the second year, after the covering crop has been cut down. During the winter the soil is drawn up around the plants and a dressing of stable manure given. In cases where the plants have made poor growth the natural manure is supplemented by a dressing of nitrate of soda. Reaping should take place a little before the seeds are fully ripe; if left late it is an advantage to cut in the early morning while the dew is still on the plants. The crop is cut either by hand, using a scythe or sickle, or by means of a reaping machine. After reaping, the stems are usually bound in loose sheaves and stacked for a few days to dry before threshing. This may be done either by machinery or by hand in the field, laying the stems out on a cloth spread over the ground and beating with flails. The yield of seed is very variable, and may reach 20 cwt. per acre on rich soil; though half this amount would be considered a fair average yield. 1½-cwt. bags are commonly used for packing the seed.

CHAMOMILE.—Chamomile is said to thrive best on stiff dark loams, but it does not seem to be exacting in its soil requirements. Propagation by seed is regarded as unsatisfactory, and vegetative propagation by means of sets is therefore used. The flower-heads are harvested just as they open fully, and frequent pickings are necessary to obtain the material at the correct stage of maturity. Commercial valuations of chamomile flowers are based largely on their good colour, and rapid and careful drying is required.

COLCHICUM.—The plant requires a cool, temperate climate. Propagation is best done by means of the corms, which under European conditions should be planted in August or September, 2 in. to 3 in. deep. The plants may also be grown from seed, but the corms will not then be large enough for harvesting until about five to seven years old. The seeds should be sown soon after ripening in June or July; germination is often slow, and the seedlings may not appear before the following spring. Flowering begins when three to five years old. The corms are best dug up in July, before flowering commences, as it is at this time that they contain most colchicine. Drying should be carried out as soon as possible after harvesting or the corms will begin to sprout. After removal the outer scales are cut into thin slices and spread out on trays to dry in moderate heat. The temperature must not exceed 65° C. or the colchicine, which is the active principle of the drug, will be destroyed. The seeds are collected when the mature fruit appears above the ground in June. The whole capsule is gathered and the seeds are taken out for drying. As in the case of the corms, the temperature during drying must not exceed 65° C.

DIGITALIS.—Only seed of selected strains should be used in cultivation. The seedlings should be thinned out to about 4 in. or 5 in. apart in the rows, and the thinnings can readily be transplanted in damp weather to further nursery beds. Sowing takes place generally in the spring, and planting-out in the field either in the following autumn or in the spring of the next year. The land should be well prepared and manured beforehand, and regular cultivation is required while the crop is growing. The planting distances must be determined by local conditions and the method of cultivation adopted; something of the order of 2 ft. by 1 ft. is suggested.

The leaves, which should be fully mature before harvesting, may be collected either in the first year or from the flowering plants. It is important that they should be dried rapidly and with the minimum possible delay. Artificial drying at a temperature of 55° C. to 60° C. is almost essential for good results, and the drug should, if possible be packed in air-tight containers.

LIQUORICE.—This large, bushy, herbaceous plant takes from three to five years' cultivation before it is ready for harvesting. To grow "catch" crops between the rows during the first two or three years is therefore desirable. Propagation is by means of runners, which are cut into short lengths, each piece having two or three buds. The old crown may sometimes be divided also, and used as planting material. Planting takes place commonly in the early spring, and where possible the land should be well manured and prepared beforehand. In this country the sets are usually planted in groups, spaced about 1 ft. apart along ridges 2 ft. apart. Weeds have to be kept down during the growing period, and before each winter the shoots are cut back close to the ground. Lifting which takes place in the autumn, as soon as the rains have commenced, is a laborious operation, as it is necessary to dig a trench beside the plant and loosen the earth between the roots before they can be pulled out. The long, straight roots, after trimming of the small branches, which are rejected, are washed and cut into lengths, then dried slowly under cover for some months. With a proportion of the crop the dark outer cork layer is peeled off before drying, giving "peeled liquorice," which is yellow in colour.

LOBELIA.—*Lobelia inflata* grows wild in open woodlands and meadows, requiring a moist, temperate climate and loamy soils rich in humus. The plant—an annual—is readily cultivated, but must have specially well-prepared ground as the seeds are very small. In the United States, sowing is in either autumn or spring the former giving the better crop as a rule. The seeds are sown in rows about 2 ft. apart, on the surface, which is pressed down afterwards to make it firm. Cultivation to keep down weed growth is recommended. The flowering stems are cut, with the upper leaves, when the plants are in full flower or when the oldest seed pods are nearly full-grown. Careful shade drying is needed to preserve the natural colour and give a good product.

PSYLLIUM.—The various species of plantago (*P. psyllium*, *P. arenaria* and *P. ovata*) yielding commercial psyllium seed are much alike in their cultural requirements. Given suitable climatic and soil conditions cultivation presents no difficulties; indeed the plants are often prolific weeds in their native habitat. Generally speaking, they thrive best in a dry, sunny climate of the Mediterranean type, but this is not essential. Both *P. arenaria* and *P. psyllium* are naturalised in the Channel Islands and have been grown successfully in England. Dry sandy soils are the most suitable. All the species concerned are annuals, and the seed is sown in spring, in rows about 2 ft. apart, and just covered with soil. Little attention is needed, beyond cultivation and weeding between the rows, perhaps once or twice, and the crop is ready for harvesting generally by August. The plants are harvested entire, dried and threshed to free the seed, which is separated by sifting.

VALERIAN.—A perennial herb belonging to the cool temperate regions of Europe, this plant is usually found growing in damp, shady places, often beside the banks of streams. Two varieties are met with: *Valeriana officinalis*, var. *sambucifolia*, and *V. officinalis*, var. *mikanii*. The latter, which is distinguished by a leaf with more numerous leaflets (six to ten pairs), usually without serrations, is preferred by growers, as it gives a larger root and is richer in active substance. Bearing in mind the plant's natural habitat, it is well to choose a moist, rich soil for cultivation, though shade is not essential. The crop can be grown from seed, but propagation is normally by sets, which are the short side-branches taken from older rhizomes. These are planted out in early spring, generally about 9 in. to 1 ft. apart, in rows set about 18 in. apart. Rather closer spacing is adopted when the plants have been raised from seed. During the growing season the beds should be kept free from weeds, and it is usual to cut off all flower stalks as they form. A ridge of soil drawn up round the base of the plants is said to promote formation of a larger rhizome. Harvesting takes place in late summer or autumn (in the second year if grown from seed). The tops are cut off close to the ground, and the rhizomes dug up and washed by leaving for several days in baskets in running water. Drying must be thorough and should be as rapid as possible. Artificial heat is therefore necessary, and in this country the drug is dried in kilns, the larger rhizomes being sliced beforehand. Sometimes the rhizomes are dipped in boiling water before drying, in order to destroy an enzyme which is associated with the development during the drying process of a brown colour and a very disagreeable odour.

TRADE REPORT

Spot quotations recorded for pharmaceutical chemicals, crude drugs and essential oils represent the prices for wholesale quantities of standard quality. C.i.f. quotations do not include marine war risk insurance and other abnormal charges payable in the present emergency

28 Essex Street, W.C.2, August 13

DURING the past few days, business on the London drug markets has depended almost entirely on a small but steady routine demand from the home consuming trades. Apart from several products which have recently shown rather sharp advances in values, there have been very few price changes. In the PHARMACEUTICAL CHEMICALS markets, business has been quiet, but fairly steady. No improvement is noticeable in the supply position of BENZOIC ACID or SODIUM BENZOATE, and prices continue nominal. Makers of BENZYL BENZOATE report that they are able to supply this product for medical purposes only. CODEINE, which advanced recently, is now steady. Among the PHOTOGRAPHIC CHEMICALS, the price of SODIUM HYPOSULPHITE has advanced. POTASSIUM METABISULPHITE is no longer available, and has been replaced by the sodium salt. British makers of VANILLIN have advanced their quotations.

Crude Drugs

Conditions in these markets continue quiet, with a small consuming trade passing. The only other activity has been a considerable amount of inquiry and demand for goods that will eventually come up for re-sale. Some Japanese ACONITE root is reported available on spot. Three different prices are quoted for AGAR, according to the purpose for which the product is required. Demand for Curaçao ALOES shows no signs of abating, despite the fact that supplies are non-existent. ANTIMONY has been in average demand at steady prices. It is understood that the new crop of ARNICA FLOWERS is ready for shipment, but supplies will depend on import licences being granted and on freight being available. Spot stocks of Japanese CAMPHOR appear to be practically exhausted. ASCARA SAGRADA remains very firm and in short supply. COLOYNTH has been in fair inquiry. No shipments of new-crop DAMIANA LEAVES are expected before the end of the year. Good-testing TERRIS ROOT commands a ready sale at steady prices. Rather more activity is reported in new-crop Portuguese ERGOT. IPECACUANHA is firmer. Small supplies of LOBELIA HERB are firmly held on spot. Higher spot prices are again recorded for Chinese MENTHOL.

Essential Oils

These products have had another quiet week, with business confined to small quantities. Prices generally are very firm and show tendency to rise. ANISE (STAR) is still in short supply and quoted at high figures. BAY is steady. Dealers' prices for CAJUPUT show no advance. CINNAMON LEAF is firmer. Quotations for English-made CLOVE are steady and unchanged. Spot prices of GERANIUM could be a matter for negotiation. Official prices of GROUNDNUT and LINSEED are unchanged. LEMONGRASS is extremely firm and dearer. Stocks of genuine West Indian LIME are on the short side. NUTMEG is firmer and in very limited supply. Spot quotations for ALMAROSA show an advance. Higher prices are reported to have been paid for Chinese PEPPERMINT.

Exchange Rates on London

The only movement this week is a decline in the rate of the Shanghai dollar to 2½d. The "freezing" of Japanese and Chinese funds and Japanese counter measures have resulted in the Shanghai dollar becoming a weak and nominal market. The following are the principal rates of exchange at the opening on August 13: New York, 4.03 dollars (Bank of England fixed rate); Madrid, 40.50 pesetas (official) and 46.55 pesetas (voluntary); Lisbon, 100 escudos (Bank of England fixed rate); Zurich, 17.35 francs (Bank of England fixed rate); Stockholm, 16.90 kroner (Bank of England fixed rate).

Pharmaceutical Chemicals

ASPIRIN.—Makers' prices are unchanged:—

Quantity	In containers of					
	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
1 lb. and under 4 lb.	s. d. 3 10½	s. d. 3 9	s. d. —	s. d. —	s. d. —	s. d. —
4 lb. and under 7 lb.	3 9½	3 8	3 7½	—	—	—
7 lb. and under 14 lb.	3 8½	3 7	3 6½	3 6½	—	—
14 lb. and under 28 lb.	3 7½	3 6	3 5½	3 5½	3 5	—
28 lb. and under 1 cwt.	3 6½	3 5	3 4½	3 4½	3 4	3 3½
Not less than 1 cwt.	2 11½	2 10	2 9½	2 9½	2 9*	2 8½
Not less than 5 cwt.	2 11	2 9½	2 8½	2 8½	2 8½*	2 8
Not less than 10 cwt.	2 10	2 8½	2 8½	2 7½	2 7½*	2 7

* 8 × 14 lb. and upwards in one delivery, ½d. per lb. less.

Sale is subject to buyer's undertaking not to re-sell any quantity at prices or terms below scale for such quantity current at time re-sale is made, and, if converted into tablets, not to sell any number at prices or terms below scale current at time of sale.

ATROPINE.—Makers' prices are steady: ALKALOID, 21s. per oz.; 4 oz., 20s. 6d., and 25 oz., 20s. per oz. SULPHATE, 16s. 6d. per oz.; 4 oz., 16s., and 25 oz., 15s. 6d. per oz. Bottles, under 5-gm. or ¼-oz., corked, 3d.; stoppered, 5d.; 5-gm. to 25-gm. or ¼-oz., corked, 3½d.; stoppered, 6d.; 25-gm. or 1-oz., corked, 3½d.; stoppered, 7½d.; 50-gm. or 2-oz., corked, 4d.; stoppered, 9d. each; 100-gm. and over, included in price; tubes, per 100, 5-gr. 10s. 6d.; 10-gr., 12s. 3d.; 15-gr., 14s.

BARBITONE.—Firm and unchanged. Spot, about 30s. to 33s. per lb., according to quantity. SODIUM BARBITONE.—About 32s. to 35s. per lb.

BENZOIC ACID (B.P.).—No improvement is noticeable in the supply position and prices remain nominal at about 2s. 6d. to 2s. 9d. per lb., according to quantity. SODIUM BENZOATE.—Quotations nominal at about 2s. 3d. to 2s. 6d. per lb.

BENZYL BENZOATE.—Makers report they are able to supply for medical purposes only; prices are nominal at around 4s. 6d. to 5s. per lb.

BISMUTH SALTS.—Makers' prices for the two leading salts are as follows: CARBONATE.—1 cwt., 8s. 4d.; 28 lb., 8s. 7d.; 8 lb., 10s.; 4 lb., 10s. 9d.; under 4 lb., 11s. 3d. per lb. SUBNITRATE.—1 cwt., 7s. 3d.; 28 lb., 7s. 6d.; 8 lb., 8s. 8d.; 4 lb., 9s. 5d.; under 4 lb., 9s. 11d. per lb.

BORAX.—Makers' quotations for B.P. powder are steady at £35 10s. per ton, and crystals at 10s. per ton less, in one-cwt. bags, carriage paid in Great Britain, for minimum one-ton lots.

BORIC ACID.—Powder, B.P., is quoted by makers at £52 10s. per ton and crystals at £51 10s. per ton, in one-cwt. bags, carriage paid in Great Britain, for minimum one-ton lots.

BROMIDES.—Makers' prices are steady at the following rates:—

POTASSIUM	In parcels of					
	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
1 lb. and under 4 lb.	s. d. 3 11	s. d. 3 9½	s. d. —	s. d. —	s. d. —	s. d. —
4 lb. and under 7 lb.	3 10	3 8½	3 8½	—	—	—
7 lb. and under 14 lb.	3 9	3 7½	3 7½	3 6½	—	—
14 lb. and under 28 lb.	3 8	3 6½	3 6½	3 5½	3 5½	—
28 lb. and under 1 cwt.	3 7	3 5½	3 5½	3 4½	3 4½	3 4
1 cwt.	3 0½	2 11	2 10½	2 10½	2 10	2 9½
5 cwt.	2 11½	2 10	2 9½	2 9½	2 9	2 8½

SODIUM, 1d. per lb. extra; AMMONIUM, 3d. per lb. extra; packing extra but returnable. Net. Carriage paid in United Kingdom on minimum one-cwt. lots. Contracts over six months: each delivery against contract to be charged at schedule rates current on day of dispatch of goods. War-emergency clause and usual re-sale terms apply.

CITRATES.—Official quotations are unaltered: POTASSIUM, B.P., 28 lb., 2s. 5d.; 14 lb., 2s. 6½d.; 7 lb., 2s. 7½d.; 4 lb., 2s. 9½d.; under 4 lb., 3s. per lb. SODIUM, B.P., one penny per lb. below, and IRON AND AMMONIUM (SCALES), B.P., threepence per lb. over above prices. Packages extra.

CODEINE.—Makers' prices are steady at the recent advance as follows: ALKALOID: ½ oz., 43s. 3d.; 1 oz., 40s. 9d.; 2 oz., 39s. 3d.; 3 oz., 38s. 6d.; 4 oz., 38s. 3d. PHOSPHATE: ½ oz., 36s. 3d.; 1 oz., 33s. 9d.; 2 oz., 32s. 3d.; 3 oz., 31s. 6d.; 4 oz., 31s. 3d. per oz.

ETHERS (METHYLATED).—Makers' quotations are as follows:—

Specific Gravity and Grade	Winchester quarts, per lb.	Not less than		Drums & Carboys, per lb.
		6 w. qts., per lb.	12 w. qts., per lb.	
0.750	s. d. 1 5½	s. d. 1 4½	s. d. 1 4½	s. d. 1 3½
0.735	1 5½	1 5½	1 4½	1 3½
0.730	1 5½	1 5½	1 4½	1 3½
0.725	1 7½	1 7½	1 6½	1 5½
0.725 triply rectified	2 0½	1 11½	1 11½	1 10½
0.720	1 8½	1 8½	1 7½	1 6½
0.717	2 2½	2 2½	2 1½	2 0½
0.720 B.P., not for anaesthesia	1 10	1 9½	1 9	1 8

Net prices, usual terms. Special prices for quantities and contracts, subject to rise and fall clause. Prices for anesthetic ethers unchanged.

EMETINE HYDROCHLORIDE.—Makers continue to quote about 100s. to 104s. per oz., according to quantity.

GLYCERIN.—Quotations for small supplies are as follows: 1-cwt. drum, 81s. per cwt.; 56-lb. tin, 89s.; 28-lb. tin, 92s.; 14-lb. tin, 95s. per cwt., all prices subject to 2½ per cent. discount for cash in twenty-eight days.

GUAIACOL CARBONATE.—Values steady at approximately 12s. 6d. to 13s. per lb., according to quantity. CRYSTALS.—Steady at around 12s. 6d. to 13s. per lb., according to quantity.

HEXAMINE.—Free-running crystals continue to be quoted by dealers at about 2s. 3d. per lb., with other grades at lower prices.

MAGNESIUM CARBONATE.—The official price for heavy remains at 106s. per cwt., and for light at 77s. 6d. per cwt.

MAGNESIUM TRISILICATE.—Makers' prices are steady as follows: Not less than 1 cwt., 2s. 7d. per lb.; 28 lb. and less than 1 cwt., 3s.; 14 lb. and less than 28 lb., 3s. 1½d.; 7 lb. and under 14 lb., 3s. 2½d.; 4 lb. and under 7 lb., 3s. 4½d.; 1 lb. and under 4 lb., 3s. 7d. Packages extra and returnable.

MERCURIALS.—Controlled prices are as follows:—

Mercury Compound	Over 7 lb. but less than 28 lb.	28 lb. and over but less than 1 cwt.	1 cwt. and over but less than 2 cwt.	2 cwt. and over but less than 5 cwt.	5 cwt. and over
Bichloride, powder	s. d. 12 0	s. d. 11 8	s. d. 11 7	s. d. 11 6	s. d. 11 4
Bichloride (industrial quality) ..	12 0	11 8	11 7	11 5	11 3
Bichloride, lump	12 7	12 3	12 2	12 1	11 10
Ammonium chloride, powder ..	13 10	13 6	13 5	13 4	12 10
Ammonium chloride, lump ..	13 8	13 4	13 3	13 2	12 8
Chloride (mercurous)	14 2	13 10	13 9	13 8	13 6
Oxide, red crystalline, B.P. ..	15 11	15 7	15 6	15 5	15 3
Oxide, red levigated, B.P. ..	15 5	15 1	15 0	14 11	14 11
Oxide, red technical	All quantities—14s. 8d. per lb.				
Oxide, yellow levigated, B.P. ..	15 4	15 0	14 11	14 10	14 10
Oxide, yellow technical	All quantities—14s. 4d. per lb.				

Packages free for quantities of 28 lb. and over; delivery free on orders of £20 and over.

METHYL SULPHONAL.—Market quiet. Dealers quote around 39s. to 41s. per lb., ex store.

PHENACETIN.—Dealers are firm in their views, quoting about 10s. 6d. to 12s. per lb. Makers' prices are unchanged.

PHENAZONE.—Firm, with supplies rather restricted. Dealers would require about 18s. 6d. to 23s. 6d. per lb., according to quantity.

PHOTOGRAPHIC CHEMICALS.—Home makers' prices for SODIUM HYPO-SULPHITE have been advanced as follows: 5 cwt., 23s.; 1 cwt., 26s.; 56 lb. for 16s. 6d.; 28 lb. for 8s. 6d. POTASSIUM METABISULPHITE is no longer available, and has been replaced by the sodium salt, prices of which are as follows: 28 lb., 9d. per lb.; 14 lb., 10d.; 7 lb., 11d.; 1 lb., 1s.; bottles, 1s. 6d. No changes have occurred in the prices of other photographic chemicals (see C. & D., June 7, p. 342).

POTASSIUM PERMANGANATE.—Makers' prices are fully steady:—

Minimum delivery of	B.P. Quality		Technical	
	In 1-cwt. drums	In 5-cwt. drums	In 1-cwt. drums	In 5-cwt. drums
	Per lb.	Per lb.	Per cwt.	Per cwt.
1 cwt. up	s. d. 1 5	s. d. —	s. d. 161 6	s. d. —
3 cwt. up	1 5	—	157 0	—
5 cwt. up	1 4½	1 4½	154 6	152 0
1 ton up	1 4½	1 4½	152 0	149 6
4 tons up	1 4½	1 4	149 6	147 3

Terms: Net, delivered nearest railway station in Great Britain; drums extra and returnable.

SACCHARIN.—There is no change in the Convention rate of 98s. 4d. per lb., duty paid, for 550 material. Neither wholesale nor retail prices are officially controlled.

SALICYLIC ACID (B.P.).—Steady. Makers' prices are as follows: 5 cwt., 1s. 8d. per lb.; 1 cwt., 1s. 8½d.; 28 lb., 2s. 0½d., in 28 lb. parcels; 14 lb., 2s. 6½d.; 7 lb., 2s. 7½d.; 4 lb., 2s. 9½d. Can be assorted with sodium salicylate.

SODIUM SALICYLATE (B.P.).—Makers' scales of prices are as follows:—

In containers of	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
Under 4 lb. ..	s. d. 3 0	s. d. 2 10½	s. d. —	s. d. —	s. d. —	s. d. —
4 lb. and under 7 lb. ..	2 11	2 9½	2 9½	—	—	—
7 lb. and under 14 lb. ..	2 10	2 8½	2 8½	2 7½	—	—
14 lb. and under 28 lb. ..	2 9	2 7½	2 7½	2 6½	2 5½	—
28 lb. and under 1 cwt. ..	2 8	2 6½	2 6½	2 5½	2 5	2 5
1 cwt. and under 5 cwt. ..	2 3	2 1½	2 1½	2 0½	2 0½	2 0
5 cwt. and under 1 ton ..	2 2½	2 1	2 0½	2 0	2 0*	1 11½
1 ton ..	2 2	2 0½	2 0½	1 11½	1 11½	1 11

* 8 x 14 lb. and upwards, in one delivery, ½d. lb. less.

Prices include parcels or collapsible cartons; other packages charged extra. Can be assorted with salicylic acid. Prices are quoted subject to buyer's undertaking not to re-sell any quantities at prices or terms below scale current at time of re-sale.

STRYCHNINE SALTS.—British makers' prices per oz. are as follows:—

	Under 100 oz.	100 oz. and under 500 oz.	500 oz. and over
Alkaloid, crystalline ..	s. d. 3 0	s. d. 2 10½	s. d. 2 9
Alkaloid, precipitated ..	3 0	2 10½	2 9
Acetate ..	3 2½	3 1	2 11½
Arsenate ..	3 1	2 11½	2 10
Arsenite ..	3 2½	3 1	2 11½
Bisulphate ..	2 4½	2 3	2 1½
Hydrochloride ..	2 9½	2 8	2 6½
Hypophosphite ..	5 6	5 4½	5 3
Nitrate, crystalline ..	2 9½	2 8	2 6½
Nitrate, powder ..	2 9½	2 8	2 6
Nitrate, powder, No. 2 ..	2 3	2 1½	2 0
Phosphate ..	3 7½	3 6	3 4½
Sulphate, neutral, crystalline ..	2 6	2 4½	2 3
Sulphate, neutral, powder ..	2 6	2 4½	2 3
Sulphate, neutral, powder No. 2 ..	2 1	1 11½	1 10

25-oz. containers and outer cases free; smaller packages extra. Contracts may be booked for quantities of 100 oz. and over, with rise-and-fall clause, for a period of six months. Terms net thirty days. Wholesale distributors' prices for small quantities would be dearer.

SANTONIN.—Prices for the home trade are as follows: 15 kilos and over, £46 10s.; not less than 10 kilos, £47 5s.; not less than 5 kilos, £48 5s. less than 5 kilos, £50 per kilo, delivered free in the United Kingdom 1-kilo packages free.

VANILLIN.—British makers have advanced their quotations as follows: Ex clove oil or guaiacol, five cwt., 19s. 3d. per lb.; one-cwt., 19s. 6d. 56 lb., 19s. 9d.; less than 56 lb., 20s., carriage paid in U.K. Tins in case returnable.

Crude Drugs

ACONITE ROOT.—Some Japanese is reported available on spot at about 215s. per cwt. Indian, if available, would be worth around 1s. 7d. per lb.

AGAR.—While the demand remains keen, the smallness of present stocks makes business difficult. Unrestricted material would be worth about 24s. per lb.; for medicinal use, about 22s. per lb.; and for bacteriological use between 16s. and 17s. per lb. All the above material is Kobe No. 1 quality.

ALOES.—A good inquiry continues for Curaçao, but in the absence of supplies, prices are nominal. Cape is unchanged on spot at about 55s. to 57s. 6d. per cwt., ex store.

ANTIMONY.—Average business, market steady. English regulus, £102 10s. per ton, delivered, for minimum 99 per cent.; foreign regulus, £93 per ton, duty paid; Chinese, nominal.

ARNICA FLOWERS.—No supplies are held on spot and no quotations are made. It is understood that the new crop is ready for shipment, but shipments will depend on import licences being granted, and on freight being available.

BALSAMS.—Steady and unchanged. *Tolu*, about 8s. 6d. per lb.; *Canada*, approximately 7s. 9d. per lb.; *Copaiba*, B.P., about 3s. 6d. per lb., if available; *Peru*, 7s. 3d. and 7s. 6d. per lb.

BELLADONNA.—Forward quotations for Indian root and leaves remain at the previously quoted figure of 350s. per cwt., c.i.f.

BENZOIN.—In fair inquiry, but with few sellers. Spot would be worth £7 upwards per cwt., ex store.

BISMUTH METAL.—Minimum 5-cwt. lots are quoted steadily at one dollar 25 cents per lb.

BUCHU.—Good green rounds are quoted on spot at about 3s. 1d. to 3s. 3d. per lb.; shipment, new-crop, unchanged at about 2s. 7½d. per lb. for f.a.q.

CAMPHOR.—Stocks of Japanese appear to be practically exhausted, but mention has been made of a few cases of slabs and powder for which 6s. 6d. per lb. has been asked. English refined, steady at the recent advance, as follows: Flowers, one cwt., 7s.; 28 lb., 7s. 3d.; less than 28 lb., 7s. 6d. per lb. Transparent tablets, ¼-oz.: one cwt., 7s. 6d.; 28 lb., 7s. 9d.; less than 28 lb., 8s. per lb.

CANTHARIDES.—The spot value of Chinese would be in the region of 7s. to 7s. 3d. per lb., ex store.

CARDAMOMS.—In quiet demand at steady prices;—stocks are small. Spot, Bombay seed, about 5s. 3d. per lb.; Mangalore seed, 5s.; Aleppy greens, 5s. 3d. per lb.

CASCARA SAGRADA.—Spot remains very firm and in poor supply at about 145s. to 150s. per cwt., duty paid, according to age of bark. The position of import licences for this product appears to be uncertain.

CHILLIES.—Quiet conditions were recorded in this market with no price change. Mombasa, spot, 165s. per cwt., sellers; Sierra Leone, 160s.; and Sudan, 155s., duty paid.

CLOVES.—Conditions remain as reported last week. Zanzibar, spot, nominal, at 2s. 1½d. per lb.; shipment, grade 2, nominal. Madagascar, in bond, unquoted.

COLOCYNTH.—Some inquiry has been received for spot goods, but supplies are difficult to find. Spot holders of fine white pulp would require at least 3s. 6d. per lb.

DAMIANA LEAVES.—Quotations are nominal in the absence of supplies. No shipments of new-crop are expected until the end of the year, subject to import licences being granted and freight being available.

DANDELION ROOT.—Small supplies of Indian root are stated to be available on spot at approximately 155s. per cwt., ex store.

DERIS ROOT.—Demand is steady, especially for good rotenone testing root. Spot, 4-5 per cent. rotenone, about 1s. 3d. per lb.; slightly lower, about 1s. 2d. per lb.; 18 per cent. ether extract, tested, about 1s. per lb.

DRAGONS BLOOD.—Firm, with spot quotations for re-boiled maintained at around £30 per cwt.

ERGOT.—Rather more activity is reported in Portuguese new-crop, with business done at 6s. 3d. to 6s. 6d. per lb., c.i.f. Spot remains at about 9s. per lb.

GAMBOGE.—Spot, in small supply, is quoted at about £30 per cwt., nominal; forward offers are unobtainable.

GINGER.—Supplies are difficult to obtain and high rates are maintained. West African, spot, 170s. per cwt., sellers; afloat, 150s., c.i.f. Cochín, unwashed, afloat, 150s., c.i.f.

GUM ACACIA.—Kordofan cleaned sorts is now quoted on spot at the nominal figure of 160s. per cwt.; shipment, about 60s. per cwt., c.i.f. Bleached, from 320s.

HENBANE.—Forward quotations for Indian remain at approximately 350s. per cwt., c.i.f.

HONEY.—Maximum c.i.f. prices per cwt. paid by importers are as follows: Produced in Canada, 65s.; in any British Dependency in the West Indies (including British Honduras), 65s.; Australia, 65s.; New Zealand, 65s.; Tanganyika, 45s.

HYDRASTIS.—Spot quotations for tested are in the region of 22s. per lb. and for untested 20s. per lb.

IPECACUANHA.—Firm. Matto Grosso, price from origin remains at about 16s. per lb., c.i.f., with re-sellers at around 15s. 6d.; spot, about 17s. 6d. per lb., ex store. Minas, spot, about 12s. 6d. per lb.; shipment, about 11s. to 11s. 9d. per lb., c.i.f. EXT. IPECAC. 110s., 26s. per lb., for minimum lots of twelve winchesters.

LOBELIA HERB.—Scarce and firmly held on spot at around 2s. 3d. per lb.

MENTHOL.—Chinese firm and in good demand. Some business is reported done on spot at 49s. per lb., with possible further supplies at this figure; business is also reported done in afloat material at 46s. per lb., landed and duty paid. Japanese, a few odd cases on spot at about 50s. per lb.

MERCURY.—Open-market business remains restricted. Official prices range from £47 15s. to £48 15s. per bottle of 76 lb., ex warehouse.

NUTMEGS.—Values are at the levels indicated last week. Spot, Eastern browns, 65's, 2s. 4d. per lb.; 80's, 2s. 2d.; West Indian, sound unsorted, 8s. 9d.; 80's, 2s. 2d.; 90's, 2s.; wormy and broken, 1s. 7d., nominal.

ORANGE PEEL.—Bitter quarters are quoted on spot at about 2s. 1d. to 2s. 2d. per lb.; thin-cut, if available, about 4s. per lb.

PEPPERS.—Values are at the lower levels indicated a week ago, with the market quiet. Lampong, spot, in bond, 9d. per lb., sellers; Tellicherry, spot, 9½d.; Aleppy, spot, 9½d., nominal. White Muntok, quiet, spot, in bond, 1s. 4d. per lb., sellers; shipment, August–September, unquoted.

PIMENTO.—Quiet, with sellers offering spot at the slightly lower figure of 2s. 1½d. per lb.; shipment, new-crop, August–September, 170s. per cwt., nominal, c.i.f.

PYRETHRUM.—Kenya flowers are quoted by dealers at about 175s. to 185s. per cwt., ex store. It is understood that prices to importers of large quantities would be appropriately lower.

QUASSIA CHIPS.—Firm and in small supply. Dealers would require at least 42s. 6d. per cwt., ex store.

QUILLAIA BARK.—Small spot supplies are offered by dealers at about 110s. to 120s. per cwt., ex store.

RHUBARB.—A fair inquiry has been received. Spot, rough-round, is offered at about 5s. 9d. to 6s. 3d. per lb., according to quality and soundness; rough-coat flat high-dried, about 6s. 6d. per lb. Forward offers vary between 4s. 4½d. and 5s. per lb., c.i.f., subject to freight being available. Spot value of Shensi would be about 8s. to 8s. 6d. per lb., according to variety.

RUBBER.—Fully steady but quiet. Standard ribbed smoked sheet, spot, 13½d., buyers; 13½d., sellers; September–December, 13½d., buyers; 13½d., sellers.

SENEGA.—Spot, in short supply, is firmly held at about 5s. 6d. per lb.

SENNA.—Market firm. Tinnevely, spot, supply small. No. 1 leaves, 10d. per lb.; No. 2 leaves, 6½d.; No. 3 leaves, 5d. per lb. Hand-picked Tinnevely pods, if available, about 1s. 6d. per lb.; manufacturing pods, 9d. to 10d. per lb. Alexandrian hand-picked pods, a few small lots available at 4s. to 7s. 6d. per lb.; manufacturing quality, 1s. 6d. to 1s. 9d. per lb.

SHELLAC.—Market firm and dearer. Standard TN orange, spot, 147s. 6d. per cwt., sellers; shipment, 148s., sellers, c.i.f. Fine orange, spot, 160s. to 200s.; pure button, 180s. per cwt.

SLIPPERY ELM BARK.—Grinding quality can be had on spot at around 1s. 2d. per lb.; wired bundles on spot would be worth about 2s. 1½d. per lb.

SQUILL.—Small supplies of Indian would now be worth about 110s. per cwt., on spot.

TRAGACANTH.—Quotations for medium grades are as follows: No. 1, white, £145; No. 2, white, £130; No. 3, white, £110; pale leaf, £90; amber leaf, £65; red leaf, from £30; woody and hoggy, from £10 to £17, ex store.

VALERIAN ROOT.—Dealers would require about 150s. per cwt. for spot supplies of Indian root.

WAXES.—Steady, with values about unchanged. BEES'.—Spot, 250s.; in bond, 225s.; Dar-es-Salaam, nominal at 210s. Japanese, first three brands, spot, duty paid, 195s. CARNAUBA.—Spot, fatty, grey, 435s.; chalky grey, 430s.; Primeira, 525s.

WITCH HAZEL (LIQUID EXTRACT).—Steady at the small advance noted last week; spot, 10s. 6d. per Imperial gallon, duty paid.

Essential and Expressed Oils

ANISE (STAR).—Still in short supply. Spot, tins in cases, about 17s. 6d. per lb.; drums, about 16s. 6d.; some drums are reported offered at 14s. 6d. per lb., c.i.f., afloat, seller's licence.

BAY.—Steady, with sales on spot limited. Prices would be in the region of 8s. per lb., ex store.

BOIS DE ROSE.—Values are unchanged, with business quiet. Spot, approximately 18s. 6d. per lb.

CAJUPUT.—Business on a limited scale, dealers' prices dearer. Spot, between 7s. 6d. and 8s. per lb., ex store.

CANANGA.—Supplies are limited and prices firm. Spot, about 32s. 6d. to 37s. 6d. per lb.

CEDARWOOD.—Dealers continue to quote American oil at about 2s. 6d. to 3s. per lb., according to quantity.

CINNAMON LEAF.—Firm. Spot values now range between 7s. and 8s. per lb.

CLOVE.—Quotations for English-made B.P. oil are steady at about 16s. per lb.

EUCALYPTUS.—Market continues steady, with not a lot of business passing. Spot, about 4s. to 4s. 6d. per lb. for 70 to 75 per cent., according to holder, and about 4s. 6d. to 4s. 9d. per lb., for 80 to 85 per cent.

GERANIUM.—Spot values of both Bourbon and Algerian oils are nominal and prices would be a matter for negotiation.

GROUNDNUT.—Present controlled price of large bulk quantities of refined deodorised is £40 per ton, naked ex works.

JUNIPER BERRY.—Small spot demand; values steady. Spot, about 30s. per lb., for limited quantities, ex store.

LAVENDER.—Not much business passing, but values are maintained. Spot, about 80s. per lb. for good-quality oil.

LEMONGRASS.—Spot values firm and dearer. Spot, approximately 14s. to 15s. per lb., according to quantity.

LIME.—Supplies of genuine West Indian oil are restricted, but spot prices are unaltered at about 32s. to 34s. per lb.

LINSEED.—Controlled price of £41 10s. per ton for large bulk quantities of crude, naked ex works, is unchanged. Distributors' prices for ordinary quantities would be higher.

MANDARIN.—Supplies are restricted and spot prices would be a matter for negotiation.

MUSTARD.—Quotations for British-made synthetic oil remain at about 20s. per lb.

NUTMEG.—Spot supplies are very limited and are firmly held at about 26s. to 28s. per lb.

ORANGE.—There is no further change in the shipment price of Californian sweet which at present shows a lay-down cost of 10s. 6d. per lb. Prices of Rhodesian and other grades would be a matter for negotiation, about 30s. per lb. being mentioned as a suitable basis.

PALMAROSA.—Firm. Spot quotations are nominal at about 28s. per lb.

PATCHOULI.—Spot prices of both Singapore and Seychelles oils would have to be negotiated, with about 50s. per lb. as a basis.

PEPPERMINT.—Some business is reported done in Chinese oil at 47s. per lb., with possible further buyers at this figure. Supplies, however, are very short and most holders are reserving their stocks for regular consumer customers, so that the market demand, which is considerable, is unfulfilled.

PETITGRAIN.—Spot values are nominal at approximately 17s. 6d. to 18s. 6d. per lb.

SANDALWOOD.—Genuine East Indian Mysore, in one-case lots, is quoted at 25s. per lb.

SASSAFRAS.—Genuine natural oil continues to be quoted on spot at about 14s. per lb.

SPEARMINT.—American oil is quoted by dealers on spot at approximately 22s. 6d. per lb.

THYME.—Market quiet and steady. Spot, about 14s. per lb. for good quality; other grades would be cheaper.

WINTERGREEN (GENUINE).—About 11s. 6d. to 14s. per lb. would be the present price required by dealers for spot.

WORMSEED.—Unchanged. Spot, approximately 23s. per lb.

Synthetics and Isolates.—Current prices are as follows: AMYL ACETATE.—Supplies are restricted. Pure, about 130s.; technical, 109s. per cwt., 10-gall. drums extra; small quantities, up to 2s. per lb. AMYL CINNAMIC ALDEHYDE.—Value would be about 20s. per lb. AMYL SALICYLATE.—Supplies are restricted. Value about 4s. to 4s. 6d. per lb. AUBEPINE (ex anethol).—Dearer at 30s. to 32s. 6d. per lb. BENZALDEHYDE.—Quoted at about 4s. 6d. to 5s. per lb. for p.f.c. BENZYL ACETATE.—3s. to 3s. 6d. per lb., with supplies difficult. BENZYL ALCOHOL.—4s. to 4s. 6d. per lb. BROMSTYROL.—100 per cent., 20s. per lb. CINNAMIC ALDEHYDE.—Supplies are restricted; quoted at about 7s. to 7s. 6d. per lb. CITRAL.—Chemically pure, 30s., with supplies difficult. CITRONELLAL.—About 12s. per lb. CITRONELLOL.—About 20s. per lb. COUMARIN.—About 18s. per lb. ETHYL PHTHALATE.—Supplies difficult; no quotations are being made. EUCALYPTOL.—Would be worth about 9s. per lb. EUGENOL.—Steady at about 22s. per lb. GERANIOL.—Ex Java, about 18s. 6d. per lb.—HELIOTROPIN (100 per cent. crystals).—Nominal and in short supply at about 30s. per lb., with possible cheaper offers from some sources. IONONE.—100 per cent., about 27s. 6d. to 30s. per lb., nominal; alpha, about 40s. per lb. ISOEUGENOL.—About 23s. per lb. LINALOL (ex bois de rose).—About 32s. 6d. LINALYL ACETATE (ex bois de rose).—35s. per lb. METHYL ANTHRANILATE.—Prices would be a subject for negotiation. MIRBANE.—10d. to 1s. 3d. per lb., according to quantity. MUSK KETONE, MUSK XYLOL and MUST AMBRETT.—Prices would be a matter for negotiation. NEROLIN.—Price would be a matter for negotiation. PHENYLACETIC ALDEHYDE.—In short supply at about 30s. per lb. PHENYL ETHYL ALCOHOL.—Price would be a subject for negotiation. SAFROL.—From about 14s. per lb. TERPINEOL.—Supplies are rather improved; value would be about 3s. to 3s. 6d. per lb. TERPINEOL ACETATE.—Supplies are difficult at about 6s. per lb.

CORRESPONDENCE

Correspondents may adopt an assumed name, but must in all cases furnish their real name and address to the Editor

Price of Saccharin Tablets.—The assertion by the chairman of the South-West Scotland Price Regulation Committee that fifty full-strength saccharin tablets should be retailed at 6d. is open to question. Admitting that 1s. per 100 is a fair price, the extra cost of packing fifties and the cost in time of supplying twice the number of customers must be reckoned in assessing the retail price. It has been the practice for a long time to supply forty saccharins for 6d., thus covering the extra cost of packing and so forth.—*Equity* (9/8).

Purchase Tax on Postages.—May I suggest that when a tax is levied on postages the tax is being paid twice on part of the cost. Normally goods are delivered by van without special charge, such delivery charge being included in the cost of the article. When postage is incurred it is for special early delivery, and we are paying double carriage and then a double tax has to be paid. Any practising pharmacist will prove that all or nearly all goods are delivered carriage paid. This practice of the trade has very few exceptions.—*J. W. Plenderleith, Montrose.*

Insurance Prescribing in Scotland.—In the 1919 agreement between the Scottish chemists and the Department of Health it was understood by both parties, if not definitely stated, that the traditional Scottish method of prescribing, i.e., twenty-four dose prescriptions or a week's supply of medicine, would not be subject to interference. Consequently, taking an average figure for a month's panel dispensing one would expect to find the figure for doses per script to be about twenty-four, probably less, and the duration figure seven days. I have reviewed my panel dispensing for July, and being a layman I trust my colleagues will accept figures to the nearest unit and not expect me to work out the figures to the fourth decimal fraction of a minim for doses or of a second for time as did the accountants with the purchase tax. I find the figures are average doses for script, thirty-seven, and to last an average of fourteen days. . . . Is it too much to ask the Standing Committee that they find a way to stop this vicious fee-cutting ramp?—*J. W. Williamson, Glasgow.*

Price Changes of Proprieties.—There will be a pretty tangled skein to straighten out before the "Price Changes of Proprieties" problem is settled satisfactorily. (*C. & D.*, August 9, p. 71.) The origin of the trouble dates back to the adoption of the destamping process by the manufacturers of advertised proprieties. In the first place this procedure should never have been permitted, because the concession for the "known, admitted and approved" remedies was intended originally to apply solely to preparations made or packed by the chemist on his own premises, and not to mass-produced factory articles. If the repeal of the Medicine Stamp Acts had occurred at the time destamping was first introduced, obviously both the wholesale and retail prices would have been reduced by the amount of the duty stamp. As it did not, the position arose in which destamped goods were issued to pharmacists and stamped products to unqualified dealers—but the price to the public remained the same in both cases, and the consumer gained no advantage from the saving of the duty, as theoretically he should have done on an untaxed article. Here again some step should have been taken to stop the practice as being in opposition to the meaning of the Act, which laid down that articles to the value of a shilling paid a threepenny tax, so that when sold at 1s. 2d. unstamped they should have come into the next higher category for stamp duty. And so we come to the present position, complicated, as it is now, by the fixing of profit under the Prices of Goods Act. Proprieties which were sold stamped at 1s. 3d. should presumably now be reduced to 1s. (plus purchase tax) after the repeal of the duties, but there is no cost of stamp to be deducted from a destamped remedy, yet it has been sold at the same price of 1s. 3d. How are the manufacturers going to fix their prices so that the consumer receives the benefit of the repeal, and that qualified and unqualified distributors are charged the same wholesale cost and yet take the same profit as before?—*J. R.* (9/8).

A Call for United Action.—The Bath Branch of the National Pharmaceutical Union has expressed the opinion several times during the past year that substantial increases in Insurance dispensing fees are long overdue (apart from special war-time conditions). Now that the higher income classes are to be covered by the scheme, the need is even more urgent. The chairman and myself would welcome the observations of all other Branches and chemists' Associations on this matter, as we hope, in the near future, to hold a special meeting with a view to starting a nationwide campaign by means of which the chemists' claim for proper professional remuneration will be presented to the Ministry of Health through the N.P.U. Executive. We shall be glad to hear from all Branch secretaries on this subject, together with any suggestions for carrying out such a plan. We hope to circulate all Branches with a report of our meeting, including the suggestions made and decisions taken, there. We are certain that the trend of events in retail pharmacy makes it imperative that all dispensing (the work for which, after all, we are really trained) should be: (1) reserved to registered pharmacies, (2) professionally remunerated. This can be achieved only by collective action. The first step is to give the Ministry of Health to understand that the average 50-60 hours of professional service available weekly for N.H.I. dispensing at all pharmacies under contract with Insurance Committees must be paid for at a rate comparing more favourably with that of the medical profession, of which ours is an allied calling. Unless this is achieved, the N.H.I. scheme, so far as chemists are concerned, is a burden and responsibility, and we should stand together in a refusal to carry it on. This is the only attitude that will ultimately give us the status to which we are due, and for which we alone can fight. We in Bath are ready to do our part for the sake of the future. How many Branches and Associations will co-operate? Please write, pledging your support.—*E. C. Haskins, Secretary, Bath Branch N.P.U., 34 Bathwick Street, Bath.*

MISCELLANEOUS INQUIRIES

We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them

Neoprene.—*B. H. T.* (7/8).—This is the term given to α -polychloroprene, a soft rubber-like mass which is used to replace rubber, and is soluble in benzene but not in alcohol. It is manufactured by allowing chloroprene to polymerise to a syrupy consistency and extracting the unchanged material with alcohol. Chloroprene is formed as a result of the polymerisation of monovinylacetylene with hydrochloric acid. When heated at 30° for forty-eight hours, or 130° for five minutes, neoprene changes to μ -polychloroprene, which closely resembles vulcanised rubber

Cream Mascara.—*W. B.* (6/8).—The following is a representative formula:—

Gelatin	..	..	..	..	3.5
Tragacanth	..	..	..	..	2.5
Spirit	..	..	..	..	10.0
Pigment	..	..	..	..	2.5
Preservative	..	..	..	..	0.1
Water	..	..	..	..	82.4

Soapwort Root.—*S. L.* (11/8).—This is the root of *Gypsophila struthium*. Although it is said to have been used at one time in this country we are unable to confirm that it is used to any appreciable extent at the moment. It was formerly imported from the Middle East, ground here, and re-exported. Germany, France and Russia, we believe, were the principal buyers, but as far as we can trace, there appears to be practically no export trade being conducted at the present time.

Blue Eye Shadow.—The following is an inexpensive formula of the type you have in mind:—

Soft Paraffin	..	..	..	..	75.0
Liquid paraffin	..	..	..	..	12.0
Blue cosmetic pigment	..	..	..	..	13.0

Spiced Vinegar Essence.—*L. Y. & Co.* (7/8).—The following is taken from "Pharmaceutical Formulas," Vol. II:—

Oil of pimento	..	..	..	..	3 dr.
Oil of clove	..	..	..	..	1½ dr.
Oil of cassia	..	..	..	..	20 ℥.
Oil of nutmeg	..	..	..	..	20 ℥.
Tincture of capsicum	..	..	..	..	3 dr.
Acetic acid (33 per cent.)	..	..	..	..	6 oz.
Glacial acetic acid to	..	..	..	..	20 oz.

One tablespoonful of this essence added to one gallon of vinegar produces a spiced pickling vinegar.

Tetrachlorethylene.—*L. G. G.* (11/8).—As an anthelmintic, this compound promises to replace carbon tetrachloride, its properties being very similar to those of the latter. Tetrachlorethylene, however, is only one-fifth as soluble in water and in the absence of fat in the intestines it is not absorbed to any appreciable extent. This probably accounts for its lower toxicity, for it has been administered orally daily to animals in high dosage with no indication of damage either to the liver or kidney. Furthermore, there have been no reports of toxic reactions in the clinical use of the drug. It can be conveniently given in soft gelatin capsules containing 1 c.c. each. The dosage and administration of tetrachlorethylene are the same as for carbon tetrachloride. Although there have been no records of severe reactions from the compound, individuals may experience a slight dizziness after administration. Tetrachlorethylene is chiefly of value against hookworm. If a patient also harbours roundworms, medication should include an ascaricide.

Toxicity of Methyl Alcohol.—*O. S.* (8/8).—Methyl alcohol given by injection to animals is less poisonous than ethyl alcohol and still less than propyl, butyl, and amyl alcohols. By oral administration and inhalation methyl alcohol is more toxic than ethyl alcohol. Methyl alcohol is a comparatively weak narcotic for animals, but is a strong cumulative poison with lethal metabolic effects which are related to its slow elimination and to its decomposition in the tissues to formaldehyde and formic acid. As regards toxic effects in man, some authorities believe that individual sensitivity plays some part in the unequal incidence of toxic symptoms under conditions of equal exposure. A concentration of 100 p.p.m. is regarded by one authority as the threshold of toxicity. One worker, arguing from his findings that 1,000 p.p.m. are dangerous to monkeys, states that the vapours from one ounce of methyl alcohol entering the human body constitute a threat when the exposure is distributed over two or three days. It has been shown that poisoning by methyl alcohol can be produced in animals by skin absorption. It appears that in man, also, toxic effects can be produced in this way. A case of poisoning is on record following the application of methyl alcohol for rheumatism while in another case toxic symptoms were observed in a painter who spilled it over his feet, soaking his shoes. The toxicity of methyl alcohol from ingestion was recognised comparatively early and the descriptions of the symptoms of such cases are very like those of severe poisoning from inhalation. As regards the symptoms of acute methyl alcohol poisoning in man, most of the cases recorded must be regarded as examples of acute intoxication. It would appear that exposure to concentrations high enough to produce any symptoms at all is often the cause of rapid development of eye lesions, ushered in by blurring or dimming of the vision, photophobia, etc. Severe exposure may be followed in a very short time by giddiness, unconsciousness, sighing respiration, depressed cardiac action, coma and death. Less severe exposure may cause acute gastrointestinal disturbances, headache, feeling of intoxication, dilated pupils, accompanied by foggy vision or even sudden blindness.

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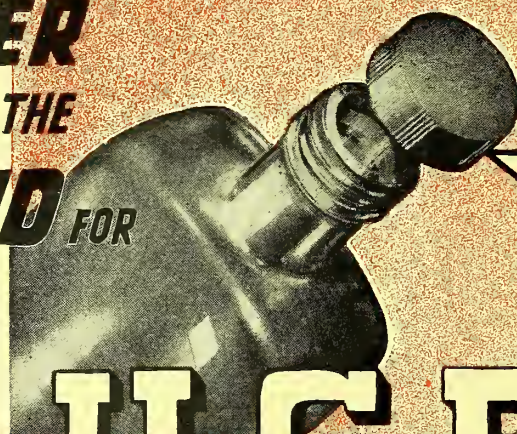
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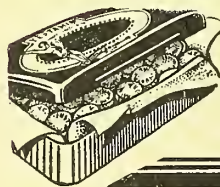
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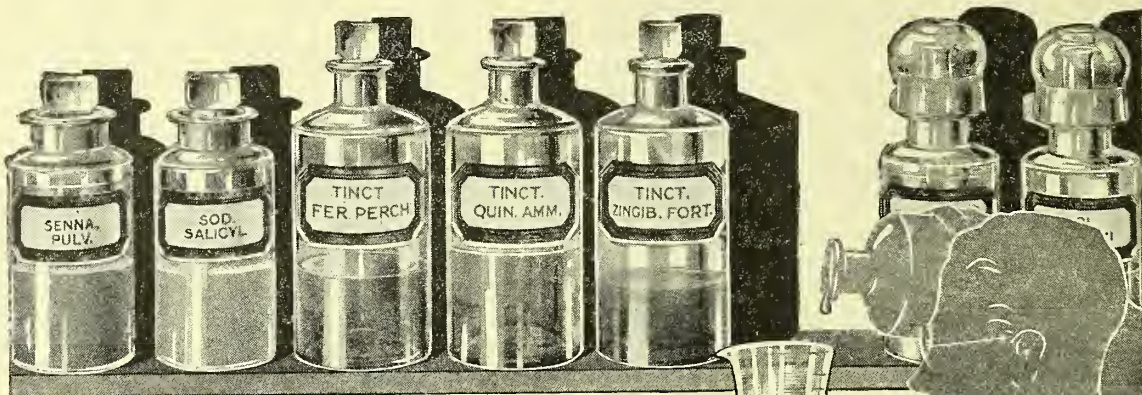
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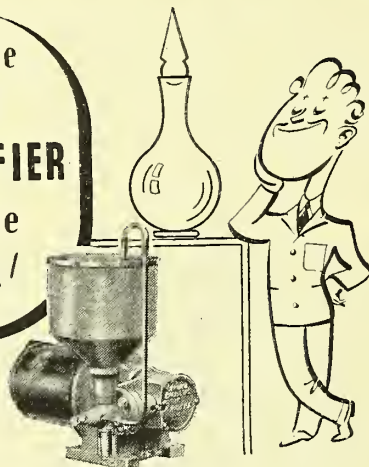
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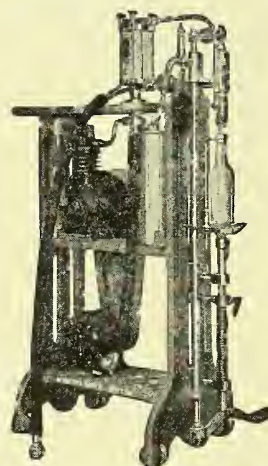
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Self Rinsing**

WRITE FOR
PARTICULARS

Roberts' Patent Filling Machine

Company Limited
BOLTON, LANCASHIRE

Makers of every description of Bottle Filling and Shallow
Jar and Tin Filling Machine for the Chemists' use
ALL RIGHTS RESERVED

There will always be
an insistent demand for
SHERLEY'S
DOG PREPARATIONS



Despite the abnormal conditions prevailing, there will always be an insistent demand for Sherley's Dog Preparations as they are recognised by Owners everywhere as the True Standard of Excellence. It would therefore be wise to stock your shelves to capacity so as not to run the risk of disappointing regular customers. We, on our part, will continue to support retailers to the utmost, and maintain the fullest supplies possible.

STOCK YOUR SHELVES with Sherley's Tonic and Condition Powders
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FREE DISPLAY MATERIAL. Bold, attractive Display Cards for counter and window are supplied to all Sherley stockists, free and post free.

A. F. SHERLEY & CO. LTD., Ballard Coombe, Warren Road, Kingston Hill, Surrey.

EXTRA DISCOUNT

In addition to our already generous terms, which include discounts of $2\frac{1}{2}$ per cent. and 5 per cent. for window display and provide a very high rate of profit for the Trade, we are now offering an extra $2\frac{1}{2}$ per cent. settlement discount for cash within thirty days of the date of invoice.

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Apiol
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(FOUR LINES)**CHAS. ZIMMERMANN
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TECHNICAL
PHOTOGRAPHIC
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CHEMICALS
ESSENTIAL OILS
(Natural and Synthetic)
GELATINES

9 & 10 ST. MARY-AT-HILL
LONDON, E.C.3

The CHEMIST AND DRUGGIST SUPPLEMENT

This Supplement is inserted in every copy of The Chemist & Druggist

28 ESSEX STREET, LONDON, W.C. 2

AUGUST 16
1941

IMPORTANT TO SUPPLEMENT ADVERTISERS

Instructions for supplement advertising are now accepted in London and at Bath. London press times have been advanced to first post WEDNESDAY morning of week of issue but instructions will still be accepted up to first post THURSDAY morning if sent to Bath. Advertisements received after these times will be inserted the following week.

THIS IS THE TARIFF

AGENCIES, GOODS FOR SALE, PARTNERSHIPS, PATENTS, PREMISES TO LET, FOR SALE or WANTED

7/6 for 36 words or less, 2d. for every additional word.

Box Office Number 1/- extra.

SITUATIONS WANTED 2/6 for 18 words or less, 1d. for every additional word. Box Office Number 1/- extra.

ALL ADVERTISEMENTS MUST BE PREPAID. To avoid disappointment send your instructions as early in the week as possible to
THE CHEMIST AND DRUGGIST, THE PITMAN PRESS, BATH
or to London Office at 28 Essex Street, Strand, London, W.C.2

LEGAL NOTICES, SALE BY AUCTION, TENDERS—AND ALL SPECIALLY SPACED ANNOUNCEMENTS

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Box Office Number 1/- extra.

BUSINESSES for DISPOSAL, BUSINESSES WANTED, SITUATIONS OPEN

7/6 for 40 words or less, 2d. for every additional word.

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EXCHANGE COLUMN (for Retailers, etc.) 2d. per word, minimum 3/- Box Office Number 1/- extra.

MISCELLANEOUS SECTION (for Wholesalers, etc.), for odd and second-hand lots.

12/6 for 60 words or less, 1/- for every additional 10 words or less.

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LIPSTICKS IN CASES LIPSTICK REFILLS VANISHING CREAM FACE POWDERS

TRADE ENQUIRIES INVITED
Write "COSMETICS"

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BRETTENHAM HOUSE, LANCASTER PLACE, W.C.2

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$4\frac{5}{8} \times 3\frac{1}{2}$ 7/6 PER 1000
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POWDER PROOF

$3\frac{3}{4} \times 2\frac{1}{8}$ 6/2 PER 1000
 $4\frac{1}{4} \times 2\frac{1}{2}$ 7/1 " " "

NETT CAR. PAID. SEND YOUR OWN DETAILED ENQUIRIES FOR SAMPLE AND PRICE.

LEWIS EAST & CO. ENVELOPE MANFRS. LEICESTER

SUBSTITUTES of various foods, spices, and fruit and flavouring essences

Progressive manufacturer is requested to communicate with advertiser for financing and developing existing and new products.

Write only: Mr. Michael, 8 Park Road, London, N.W.1

SALES OFFICE ASSISTANT (FEMALE). Applications for the above position are invited from women who have had good experience in Pharmacy. Candidates, who may or may not be qualified, must possess reliable business habits and be industrious and adaptable; previous office experience not necessary. Age not above twenty-five. Apply by letter only, giving full details of education and business experience, stating age and salary required, to SOA, c/o Glaxo Laboratories, Ltd., Greenford, Middlesex.

SITUATIONS OPEN

RETAIL (HOME)

BARNESLEY. Wanted, qualified Chemist as Branch Manager, or Assistant; male or female. State age, experience, and salary required to the Manager, Drug Dept., Barnsley British Co-operative Society, Ltd., Wellington Street, Barnsley.

GLOUCESTER. Qualified Assistant, to replace one called up. Apply, giving full particulars, age, experience, wages required, etc.; must be good Dispenser. Photo, to be returned. Davis, Sisleys, Ashleworth, Gloucester.

HARROGATE. Handford & Dawson, Ltd., Station Bridge, require a qualified Assistant. Apply, giving full particulars and salary required.

SHEFFIELD. Qualified Assistant for Retail; exempt. Also unqualified Assistant, lady or gentleman. State age, experience, and salary required, to Mr. Austen, c/o Messrs. Newshulme, Ltd., 27 High Street, Sheffield.

ASSISTANT required. Either sex, for Dispensing and Counter. High-class Dispensing and Toilet business. Apply with full particulars to Mr. R. F. Parker, Manager, Deller's Pharmacies, Palace Avenue, Paignton, S. Devon.

ASSISTANTS, qualified or unqualified, either sex, required at once for family Dispensing Business in suburban Essex, employing adequate staff. Reply, with usual particulars, etc., to "Chemist," 6 Broadwalk Parade, Collier Row, Romford. Phone: Romford 3969.

QUALIFIED Branch Managers required for permanent progressive positions. Reply, stating age, experience, and salary required, to CDB/665, London Office of this Paper.

QUALIFIED Assistant, male, for middle-class business in safe area, near Glastonbury. Exempt military service. Neat, competent Dispenser, accustomed to quick N.H.I. essential. Salary required and usual particulars (photo if possible), to Barton, Street, Somerset.

QUALIFIED and Unqualified Assistants required, also O.B.A.C. Optician; permanency for satisfactory services. Apply, stating age, height, experience and wages required, including photograph if possible, to General Manager, Co-operative Society, Rugby.

(continued overleaf)

SITUATIONS OPEN—contd.

RETAIL (HOME)

HULL. Qualified gentleman or lady required. Dispensing and Counter; light duties; permanency for suitable applicant. Full particulars, age, salary expected, references, and when free to commence. 386/181, London Office of this Paper.

LONDON, Western suburb. Unqualified Manager, either sex; good permanent position, not war vacancy, for capable businesslike applicant. Please state commencing salary desired and references. 386/180, London Office of this Paper.

MANCHESTER. Wanted Qualified to take charge of dispensary (lady or gent). Particulars and salary required to Chemist, 359 Claremont Road, Manchester, 14.

WORTHING. Active Pharmacist, either sex, to manage Branch. Scope for initiative. Easy hours. No Sunday or half-day duties. Interview necessary. Apply in first instance, giving full particulars, age, experience, and salary required. Hornsey, 8 South Farm Road, Worthing.

YORK Co-operative Society, Ltd., 22 Railway Street, York. Pharmacy Dept. Qualified Lady Assistant for quick Counter Trade and Dispensing. Apply by letter to General Manager, giving full particulars. Envelope to be endorsed "Pharmacy."

LADY, Qualified, required, brisk toilet trade, light dispensing, easy hours, no Sundays. Ilford, Essex district. Apply CDB/699, London Office of this Paper.

MANAGER for Pharmacy Branch. Must be over military age. Knowledge of retail side of Photography will be advantageous. Applications in writing, stating age, full particulars of experience, and date of qualification, to Secretary, Portsmouth Island Mutual Co-operative Society, 110 Fratton Road, Portsmouth, not later than August 20, marking envelopes "Pharmacy."

M.P.S. Required a Lady for a small shop in S.E. London. Easy hours. Full particulars to M. T., CDB/693, London Office of this Paper.

QUALIFIED Chemists. Two required immediately. One for Branch Management. One for Wholesale and Branch relief. The former preferably Welsh speaking. Both over thirty. Congenial N. Wales area. Usual particulars to L. Rowland & Co., Ltd., Mitre Buildings, Brook Street, Wrexham.

QUALIFIED Manager for London area. Permanency. Medium-class business. Good salary to keen and energetic man of good personality. No Sunday duty. Please give full particulars and photo if possible to Hooker, 46 Upton Lane, Forest Gate, E.7.

REGISTERED Pharmacist, male, required September 1st. Commencing salary £200 p.a. Hours 9-5, with occasional night duty. Apply by letter only, stating experience and references, to Chief Pharmacist, Guy's Hospital, London, S.E.1.

UNQUALIFIED Assistant, lady or gentleman, wanted for Dispensing and Counter. Apply with full particulars, references, and salary required, to Harold Lyon, 18 Formosa Street, Warwick Avenue, W.9.

UNQUALIFIED Assistant wanted for Surgical Stores. Apply 386/183, London Office of this Paper.

UNQUALIFIED Assistant, either sex, London area. Permanency. Apply Lewis & Burrows, Ltd., 146 Holborn, E.C.1.

UNQUALIFIED Assistant (male), age about 45, single, wanted by Chemist in reception area (South Midlands) for Front Counter and Relief Dispensing. Permanency. Apply with full particulars, photograph if possible, stating salary required. Applications not answered in a fortnight respectfully declined. 386/182, London Office of this Paper.

UNQUALIFIED Assistant, male or female, required. Dispensing and Counter. State age, experience, salary required, and when free, to Manager, Pharmacy Department, Ipswich Industrial Co-operative Society, Ltd., Carr Street, Ipswich. Endorse envelope "Unqualified Assistant."

VACANCY occurs in working-class district of London for Pharmacist, age about 50-60 years, to act as Qualified Assistant in place of one called up for military service. Applicants should be active and quite familiar with quick N.H.I. dispensing. Good salary. Write CDB/698, London Office of this Paper.

LOCUMS AND SEASONAL VACANCIES

LOCUM wanted for one week within the next five weeks. Phone: Str. 2443.

WHOLESALE

LANCASHIRE and District. Old-established Manufacturing Chemists require the services of an active Representative, with some retail experience, to work and extend existing connexion. State territory, experience and nature of goods previously carried, age, remuneration required, and when available, all in first letter, which will be treated in confidence. CDB/681, London Office of this Paper.

SHEFFIELD. Book-keeper, experienced, for Wholesale; exempt from military service. Lady or gentleman. State age, experience and salary required, to Mr. Austen, c/o Messrs. Newsholme, Ltd., 27 High Street, Sheffield.

ASSISTANT required in Analytical Laboratory for general pharmaceutical analysis. State experience and full particulars to C. R. Harker, Stagg & Morgan, Ltd., Emmott Street, Mile End, London, E.1.

ADAPTABLE person required to assist with general duties in Wholesale Chemists' Sundries business. Able to drive, not liable for military service. Please state experience, if any, and salary required, to CDB/694, London Office of this Paper.

EXPERIENCED Chemists required for actual production of Face Creams, Shaving Creams, etc. Also good Colour Chemist for Cosmetics, Lipsticks and Rouges. Working knowledge and good past experience essential. Apply, stating age, position regarding military service, salary required, to 386/184, London Office of this Paper.

HEAD Checker for Despatch Department, for London Wholesale Druggists. State experience and salary required. CDB/690, London Office of this Paper.

INVOICE Clerk required for London Wholesale Druggists. Write, stating experience, etc., 365/381, London Office of this Paper.

REQUIRED Qualified or Unqualified Chemist with organising ability, either male or female, for work in cosmetic factory, Dublin. State age, experience, wages required, in strict confidence to 386/187, London Office of this Paper.

REPRESENTATIVE wanted by well-known London House for their Midland and S. Wales ground. Vacancy occurs owing to war, and existing connexion will be handed over. Applicant must have had some Retail experience. Write, stating age, experience, territory covered, remuneration required, etc. Applications will not be considered unless full details given in first letter. CDB/682, London Office of this Paper.

SALESMEN required to Agent, front rank Pharmaceutical products. Excellent terms to the right men. Only those with highest credentials need apply. State territory covered and fullest possible details in confidence to: C. F. H. C., c/o R. S. Caplin, Ltd., 415 Oxford Street, London, W.1.

TABLET Maker required (Essex), for the production of Saccharin Tablets. Write full details, including salary required, to CDB/670, London Office of this Paper.

SITUATIONS WANTED

RETAIL (HOME)

MANAGERSHIP: Country town preferred. Qualified; Scot; married; over military age. Present post, Devon. All-round experience, including Veterinary. Excellent references. Kindly state terms. CDB/695, London Office of this Paper.

WHOLESALE

CHEMICAL-TECHNICAL Assistant, exempted, experienced in Chemical and Pharmaceutical Process, requires suitable position. 386/179, London Office of this Paper.

PHARMACIST and Manufacturing Chemist (refugee), with long experience, desires post as Unqualified Assistant (wholesale or retail) in London district. Write 385/155, London Office of this Paper.

WORKS Chemist, experienced in manufacture of cosmetics perfumes, soaps, toilet preparations and pharmaceuticals, requires position. Reply to 386/177, London Office of this Paper.

ASPIRIN

Regular delivery
up to
FOR

Write in confidence
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ARENCO Tube Filling
for secondhand m
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for cash. Offers t

OILS or Fats and
Box 56, Pool's,
W.C.2.

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c/o POOL'S, 1
Place, Strand,

SECONDHAND Gar
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suitable for Brill
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WANTED. One lar
to hold 14 to 28 l

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and the Belgian Cor
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Chemists, Hairdr
etc., require one or m
commission basis. A
Street, Dublin.

PUBLIC APPOINTMENT

COUNTY OF MIDDLESEX
PHARMACEUTICAL COMMITTEE

Applications are invited from registered pharmacists for the position of Secretary to the County of Middlesex Pharmaceutical Committee. The salary will be at the rate of at least £400 per annum, with provision for superannuation.

The appointment is a full-time one, but the person appointed will be permitted to act as Honorary Secretary to other pharmaceutical bodies in the County of Middlesex. Applicants should be between 30 and 40 years of age. Preference will be given to persons possessing a legal qualification or secretarial experience in a professional capacity.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, qualifications, and experience, together with the names of three persons to whom reference may be made, should be received by the undersigned not later than August 30, 1941.

THOMAS DEWAR,
Secretary.

4 Bloomsbury Square,
London, W.C.1.
August 12, 1941.

WANTED EXCHANGE

WE will exchange Saccharin Tablets for Paraff. Dur., Acid, Stearic., Cera Alb., Cetaceum. Send replies, not goods, to "Galen," CDB/678, London Office of this Paper.

MISCELLANEOUS

ADVERTISER would purchase interest in small concern registered under Class 9 and 16 Limitation of Supplies. 386/178, London Office of this Paper.

WE will deliver per return 2,000 full-strength Saccharin Tablets in exchange for each 7 lb. Sacch. Lact. dispatched carriage paid. Replies only (not goods) to be sent to "Tabellae," CDB/577, London Office of this Paper.

BUSINESSES FOR DISPOSAL

CHEMIST'S Business with stock for sale owing to death of proprietor in S.E. London. Modern flat over. No reasonable offer refused. 386/188 London Office of this Paper.

FOR SALE

ANALYTICAL Balance for Sale. Sartorius. Load 200 gm. Beam 14 cm. Sensitivities 1 and 0.1 mg. Optical reading. With platinised weights. New condition. Can be seen Hampstead. Write offers, CDB/689, London Office of this Paper.

CASTOR Oil. English; first pressings. Original drum of about 4 cwt. What offers? Sample on application, or would sell smaller lots. Ilex Supply Co., Ltd., 252b Grays Inn Road, London, W.C.1.

FACE Powder, Superfine, in de luxe boxes, 18s. dozen, retail 2s. each. Cash with order. Delivery in about one week. Replies to F. W. S., 95 Heathcote Road, Whitnash, Leamington Spa.

IN Stock, 50 gross 4-oz. bottles complete with bakelite caps; 150 gross tablet bottles No. 4 size in amber glass complete with caps. Immediate delivery. 385/173, London Office of this Paper.

ZINC STEARATE. Finest cosmetic quality. 1½ cwt. for disposal. Offers invited for whole or part. CDB/696, London Office of this Paper.

TOILET ROLLS

Fitting all holders, packed gross boxes, minimum 2 gross.

Apply for sample and offer to

BRITISH UNICORN LTD., 122 LONDON WALL, E.C.2

STOCKTAKING?

Good Stocktakers are scarce. You can halve the labour and do the job quickly and efficiently if you use the C. & D. Stocktaking Pad

C. & D. STOCKTAKING PAD

Price of Complete Pad, 2/6 post free from
The Chemist & Druggist, The Pitman Press, BATH

LATE NEWS

North London Meeting.—An address on "The Pharmacist and His War-time Difficulties" will be given by Mr. Arthur Mortimer, O.B.E., before the North London Pharmaceutical Association at Beale's Restaurant, Holloway Road, at 7.30 p.m. on August 19.

Shortage of Bottles.—One of the problems that the Eire pharmacist has to deal with just now is the grave shortage of bottles of all kinds. Some chemists have employed boys to make door-to-door canvasses to get bottles. Customers are asked to return bottles wherever possible. In the smaller towns the shortage is even greater than in the cities.

Business Changes

PETERS, LTD., a subsidiary of The Brush Electrical Engineering Co., Ltd., have reopened their London office at Bush House, North-West Wing, Aldwych, W.C.2.

D.A. REES, LTD., chemists, have closed their pharmacy at Loughborough Junction, S.W.9, following enemy action, and have opened a new business at 104 London Road, St. Albans.

Proprietary Articles Trade Association

Alterations to Protected List.—*Stephen Green, Ltd.*, Singleton's eye ointment. Purchase tax per dozen is 4s. 2d. and not as quoted on page 123 of the P.A.T.A. Year Book for 1941.—*Thomas Harley, Ltd.* Bonus of one extra tin to the dozen on minimum orders of one dozen of either Rodine phosphorus or Rodine red squill, if purchased between October 1 and 15.—*The New Era Treatment Co., Ltd.* New prices operative on September 2: Elastob tablets, 4s. 6d., 36s. doz. (P. tax, 6s. doz.), i.r.p. 3s.; Elastob tablets, special bonus package containing five bottles to be retailed intact, 18s., 144s. doz. (P. tax, 24s. doz.), i.r.p. 20s.; Nervone tablets, 4s. 6d., 36s. doz. (P. tax, 6s. doz.), i.r.p. 5s.; Nervone tablets, special bonus package containing five large bottles to be retailed intact, 18s., 144s. doz. (P. tax, 24s. doz.), i.r.p. 20s.; Nervone tablets, 2s. 8d., 21s. 4d. doz. (P. tax, 4s. doz.), i.r.p. 3s.; Elastob nature salve, 2s. 8d., 21s. 4d. doz. (P. tax, 4s. doz.), i.r.p. 3s.; Salve, special bonus package containing six boxes to be retailed intact, 13s. 4d., 106s. 8d. (P. tax, 20s. doz.), i.r.p. 15s.; N.E.T.C.O., 444 pills, small size 1s. 9d., 15s. 9d. doz. (P. tax, 2s. 7½d. doz.), i.r.p. 2s.; family size, 3s., 27s. doz. (P. tax, 4s. 6d. doz.), i.r.p. 3s. 4½d. (P. tax, 4s. 6d. doz.), i.r.p. 20s.; Lactol biscuits, 2s., 19s. 2d. doz., less 10 per cent. discount when included in £2 minimum quantity parcel. (Exempt from purchase tax).—*Stewart, Goodall & Dunlop, Ltd.* (agents for drug trade, J. C. Gambles & Co., Ltd., 209/215 Blackfriars Road, S.E.1). Nucta hair gleam, 2s. 6d., 20s. doz. (P. tax, 6s. 8d. doz.), i.r.p. 3s. 1d. The following articles have been deleted from this firm's entry in the Protected List:—Nucta hair stain; Stewart's shampoo powders.

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Will pay new price
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small quantities up to
For cash. Premium
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Scientific Instrument
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use, Lancaster Place,

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use, Lancaster

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London Office of this

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6/190 London Office of

p to 5 cwt., or in small
stock. Spot cash. No
Paper.

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accessories, Rolleiflex,
or Leica, etc. Will buy
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ion Pestle and Mortar
al Yard, Manchester 3.

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td., 65 Middle Abbey

ARE YOU UNEMPLOYED AS A DIRECT RESULT OF THE WAR ? IF SO, READ THIS

In order to assist employees who have lost their employment, either through enemy action or through businesses being closed down in defence areas, a scheme of free advertisements in the "Situations Wanted" column of this Supplement will be available until further notice.

Any such employee of a retail pharmacist, whether qualified or not, or any employee of works producing or distributing products in connexion with the drug and associated industries is invited to make full use of this facility without charge.

Advertisements should be accompanied by particulars of last employment and cause of its termination, and should be addressed to The Publisher, The Chemist and Druggist, The Pitman Press, Bath, to arrive not later than WEDNESDAY morning of week of issue.

WAR-TIME UNEMPLOYMENT SITUATIONS WANTED

The advertisements in this section are inserted free and are from advertisers who have lost their employment as a direct result of the war. Prospective employers are requested to give them special consideration.

Advertisers in this Section should advise us immediately employment has been secured.

RETAIL

A LADY Dispenser-Secretary (Hall), qualifications and many years' experience, desires urgently a post with doctors, hospital or high-class chemist. CDB/633, London Office of this Paper.

Q UALIFIED, elderly, many years' experience, seeks position as Manager, owing to loss of own pharmacy. Country, Southern England preferred. CDB/628, London Office of this Paper.

U NQUALIFIED. With long and varied experience. Over military age. Disengaged solely through war conditions. Seeks management of Drug Stores. CDB/691, London Office of this Paper.

WHOLESALE

R EPRESENTATIVE (Liverpool and North of England, North Wales). Good connexion, medical men, hospitals and nursing homes. Drugs, sundries, insts., toilets. "W.P.R.," 29 Crescent Road, Southport.

R EPRESENTATIVE with outstanding connexion in N. Ireland and part Eire seeks re-engagement on direct or agency terms. Energetic worker. Car owner. First class reference. CDB/657, London Office of this Paper.

R EPRESENTATIVE, over military age, disengaged owing to Limitation of Supplies; has represented a photographic camera and film manufacturer for the past 21 years, and has an intimate connexion among Chemists in Essex, the Midlands, and a large extent of territory covering Worcestershire and Warwickshire. Own private car and clean licence. Resident Clacton-on-Sea. CDB/673, London Office of this Paper.

T RAVELLER, desires position with well-known House; good connexion; car driver; or any responsible position; knowledge of Drug and Toilet Trade. CDB/677, London Office of this Paper.

PARTNERSHIP

P ARTNERSHIP. St. Albans. Qualified Chemist (elderly) as Partner, for converting Drug Stores into Chemist's Pharmacy; good-class district. Owner in H.M. Forces. Turn-over, April, 1940, to April, 1941, over £1000; established 2½ years; rent £125. Excellent scope for doing full N.H.I., etc. No opposition whatsoever. Apply, CDB/692, London Office of this Paper.

CHEMIST & DRUGGIST

WAR-TIME TRADE GUIDE

This 8-page guide, published in the CHEMIST & DRUGGIST, January 25, 1941, comprises a comprehensive alphabetical list of pharmaceutical products, drugs, toilet preparations, cosmetics, druggists' sundries, etc., handled by the retail pharmacist.

Against each item is indicated the War-time Trade Restriction control or tax and the amount of tax it is subject to.

Manufacturers, Wholesalers and Retailers thus have available, in a clear and concise form, all the essential information regarding current trading conditions. Reprints are available at the following post free prices.

1 copy	7d.	12 copies	5/6
3 copies	1/8	25 copies	10/6
6 copies	3/-	50 copies	20/-

Remittances should be sent with orders to

THE CHEMIST & DRUGGIST

The Pitman Press, Bath

You need
the

C. & D.

PURCHASE TAX READY RECKONER

It simplifies transactions, saves valuable time and eliminates possibility of errors.

It gives at a glance the amount of purchase tax to be added to the Retail Sales price of goods

- (a) Bought and sold by weight.
- (b) Bought and sold in numbers.

In handy form for Counter use.

1 copy	..	..	7d.	post free
3 copies	..	..	1/8	" "
6 "	..	..	3/-	" "
12 "	..	..	5/6	" "

Special quotations for larger quantities.

Remittance should accompany orders to
THE CHEMIST & DRUGGIST
The Pitman Press, BATH

RECENT DEVELOPMENTS IN THERAPEUTICS

By

F. PRESCOTT, M.Sc., Ph.D., A.I.C., M.R.C.S., L.R.C.P.

Reprints of this important series of 12 articles, published in the "Chemist and Druggist" during recent months, are now available.

Every pharmacist should possess a copy and thus keep abreast with modern medical practice.

The reprints occupy 16 pp. and will be sent post free at the following rates:—

1 set reprints	..	..	1/-
6 sets reprints	..	..	5/-
12 "	..	..	8/-
36 "	..	..	21/-

Special quotations for larger quantities.

Remittance must be sent with orders to
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The Pitman Press, BATH

BRITISH MADE ALKALOIDS AND FINE CHEMICALS

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